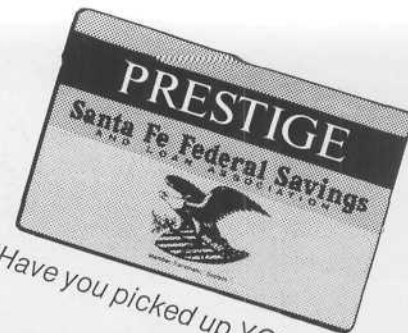


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Volume 37, Number 2

FEBRUARY, 1974

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THE COVER:
David Muench, of Santa Barbara, Calif., catches the serenity of a palm oasis with the floor of the Coachella Valley as a backdrop.

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Books for Desert Readers

DESERT
The
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By
Ruth Kirk



Ruth Kirk is so knowledgeable about the desert, one wonders how she could possibly get it all together in one book. She has, and in a most interesting way.

One learns that because man can overwhelm the desert, he has. There are the disrespectful who overwhelm it with vehicles, caring only for the thrills of their activity, their toys, and not the real setting. There are those who are overwhelming it by producing crops through the great enterprise of irrigation. There is still another way to overwhelm it, and Ruth Kirk does by understanding nearly every cell of life and grain of sand, and sharing that understanding in delightful fashion, line upon line.

Some facts about the desert which are generally unknown: that ground-surface temperature has been recorded as high as 190 degrees F.; that winters can be so cold that some birds hibernate; that the amount of rain that is usual for a whole year may fall in a single July afternoon; that there are places where rain hasn't been seen in five years; that a flood may spread out and move as a sheet, affecting areas as great as a hundred miles; that winds, coming up suddenly can reach 100 miles per hour and cause even a butterfly to hold on to a rock; that rattlesnakes do *not* always rattle before they strike.

The desert plants are so analyzed here, one begins to be aware of, and be amazed at, the variety and adaptation of plants to area demands.

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By
Arthur
Woodward



Certainly silver jewelry has the lime-light this year, as one sees both ladies and men adorned with rings, neckpieces, armlets and bracelets. Knowing the history of silversmithing, patterns and the Navajo Tribe makes the silver pieces more than jewelry, and makes wearing them an experience in sharing a graphic story.

We learn, in this book, how far wrong popular concepts of designs can be—that the bird with outstretched wings, widely known as the "thunderbird" was, in reality, a trademark design for the Santa Fe Railroad, although "the thunderbird is an unknown factor in the mythology of the Southwest."

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HANK AND HORACE

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Richard Lillard
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Mary Hood



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A Peek in the Publisher's Poke

THIS MONTH'S issue again salutes the Coachella Valley in Southern California. The valley's chief claim to fame is its resort cities that offer the ultimate in winter relaxation. But in the immediate vicinity are a vast variety of recreational offerings.

Hike or picnic in cool, palm-lined canyons, or walk along old Indian trails and try to locate desert bighorn sheep against a rugged mountain background. Search for fossil shells along an ancient shoreline, or take your metal detector and search for coins at a not-so-ancient army campsite.

Fish for rainbow trout and catfish in a variety of waterways, or try your luck at the famed Salton Sea for corvina or sargo. If painting the great outdoors is your forte, try to capture the elusive smoke tree in any number of serene washes, or catch the majesty of a sunset over Mt. San Jacinto.

Visit a date grove and sample one of nature's sweetest fruits, and top it off with an aerial tram ride that takes you from the desert floor to 8500 feet in just minutes.

All in all, a unique little valley, and just a two-hour trip from either Los Angeles or San Diego. Plan to visit us soon.

The January issue carried an article on places to pan for gold in Arizona. The Laguna Placers was one area listed in Yuma County which apparently is almost completely claimed. I have been informed by the D&D Mining Company that they hold more than 19 placer and lode claims, totaling 3000 acres in the Laguna Mountains. These claims, plus at least four others, cover the area and are well posted. Please respect these people's rights and make sure wherever you choose to pan, that you are not trespassing on claimed or private property. □

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LOST LEGENDS OF THE WEST by Brad Williams and Choral Pepper. The authors examine the "lore, legends, characters and myths that grew out of the Old West." Included among the more than 20 "lost legends" are such intriguing subjects as lost bones, lost ladies, lost towns, and lost diamonds. Hardcover, illustrated, 192 pages, \$5.95.

RELICS OF THE WHITEMAN by Marvin and Helen Davis. A logical companion to *Relics of the Redman*, this book brings out a marked difference by showing in its illustrations just how "suddenly modern" the early West became after the arrival of the white man. The difference in artifacts typifies the historical background in each case. The same authors tell how and where to collect relics of these early days, tools needed, and how to display and sell valuable pieces. Paperback, well illustrated in color and b/w, 63 pages, \$3.95.



GOLDEN CHIA, by Harrison Doyle. This book illustrates the great difference between the high desert chia, and the Mexican variety presently sold in the health food stores. It identifies the energy-factor, a little-known trace mineral found only in the high desert seeds. Also includes a section on vitamins, minerals, proteins, enzymes, etc., needed for good nutrition. Referred to as "the only reference book in America on this ancient Indian energy food." 100 pages, illustrated, Paperback, \$4.75; Cloth Cover, \$7.75.

THE CALIFORNIA MISSIONS by the Editors of Sunset Books. A beautifully written history of California's 21 missions. One can feel, as he reads, the fervor of the padres as they gathered materials to build their churches, and an insight into history develops as the authors tell in simple prose what was going on in the world at the same time. 300 pages, complete with artful sketches and photographs, and paintings in color, hardcover, large format, \$12.75.

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GHOSTS OF THE GLORY TRAIL by Nell Murbarger. A pioneer of the ghost town explorers and writers, Miss Murbarger's followers will be glad to know this book is once again in print. First published in 1956, it is now in its seventh edition. The fast-moving chronicle is a result of personal interviews of old-timers who are no longer here to tell their tales. Hardcover, illustrated, 291 pages, \$7.00.

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TURQUOIS by Joseph E. Pogue. [Memoirs of the National Academy of Sciences]. First printed in 1915, *Turquois* has in its third printing (1973) been updated in many ways. Among them are listed currently-operated Turquois mines, more color plates. The book is full of incredible results of research and an in-depth study of this fascinating mineral of superficial origin. Hardcover, 175 pages, beautifully illustrated, \$15.00.

OLD FORTS OF THE NORTHWEST by H. M. Hart. Over 200 photos and maps. Exciting pictorial history of the military posts that opened the West. Hardcover, beautifully illustrated, originally published at \$12.50. New Edition \$3.95.



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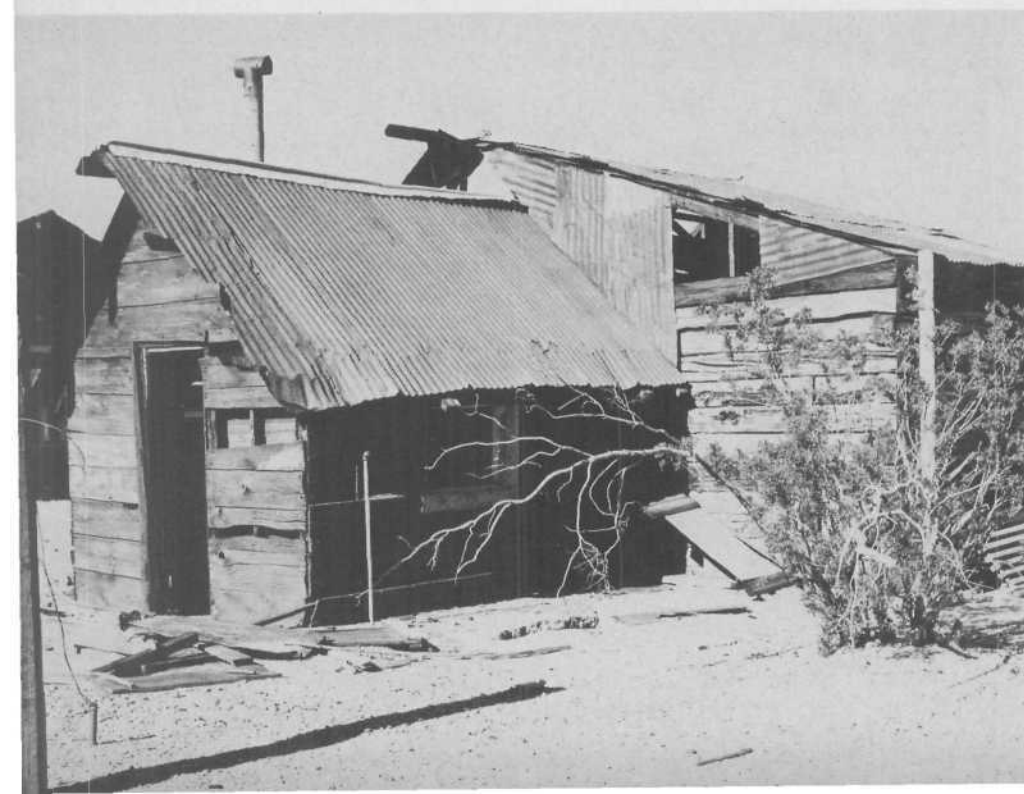
ON DESERT TRAILS by Randall Henderson, founder and publisher of Desert Magazine for 23 years. One of the first good writers to reveal the beauty of the mysterious desert areas. Henderson's experiences, combined with his comments on the desert of yesterday and today, make this a MUST for those who really want to understand the desert. 375 pages, illustrated. Hardcover, \$6.95.

30,000 MILES IN MEXICO by Nell Murbarger. Joyous adventures of a trip by pick-up camper made by two women from Tijuana to Guatemala. Folksy and entertaining, as well as instructive to others who might make the trip. Hardcover, 309 pages, \$6.00.



THE TOWN TO

Many dwellings that once provided adequate shelter and comfort in their day remain in spite of many years of neglect. Located south of the Santa Fe tracks, they offer nostalgia for the sightseer and interest to the photographer. Please remember to respect private property.



ANYONE WHO regularly traveled California's old Highway 66 across the Great Mojave Desert was apt to notice Ludlow. Not because it differed from the score of other "wide spots" in the road, but because it was usually reached about the time a hot cup of coffee, a quick cool drink or gasoline seemed a necessity.

No one lingered long, but had these short-time visitors taken a moment to look around, they would have become aware there was more, much more, to Ludlow than met the eye. South of the highway lay the remnants of a former busy railroad town. Lined with weathered, aging, mostly empty buildings—Main Street, Ludlow is a faded ghost with an illustrious past. It was a "town too dry to die!"

Construction of the Santa Fe Railroad in 1882 gave birth to Ludlow, as one in a series of sidings along the new line across the Mojave Desert. However, almost a quarter of a century would pass before the events, destined to give the siding a place in history, would be fulfilled.

The discovery of the Bagdad-Chase Mine in 1900, 10 miles south of Ludlow,

Desert Feb. 1974

Opposite page: The identity of some who were interred in the cemetery has been lost, while those that remain are approaching obscurity. Right: Built in 1908, the Ludlow Mercantile stands idle now, but has surmounted time and desert for 65 years.

catapulted the siding into an important shipping center. When the first samples were milled and showed \$17,000 in gold from 1,000 tons of ore, the mine was developed at a rapid pace.

Lack of water at the site made milling impractical and construction of a railroad seemed the answer to the problem. Completed in the spring of 1903, the Ludlow-Southern Railroad began deliv-



O DRY TO DIE!

ering ore to Ludlow Siding for transshipment to the mill at Barstow.

E. H. Stagg, Superintendent of the Bagdad-Chase Mine and the company town of Roachester (later called Steadman), declared a "closed camp"—no liquor, no women. He further ordered that liquor would not be carried on the railroad. With dozens of hard-working miners looking for a place to howl on Saturday night, it was only logical that enterprising men and women would set up shop at Ludlow. One such entrepreneur, "Mother Preston," provided a variety of entertainment and literally ran the town.

There were gay times at Ludlow on Saturday night, but more was still to come. Francis Marion "Borax" Smith and his Tonopah-Tidewater Railroad would provide the catalyst. Smith's plans to build a railroad between Tonopah and Las Vegas in 1905 were temporarily scuttled when one of his backers elected to build his own line between the two points. Shaken, but still undaunted, Smith changed his route upon learning the Santa Fe was agreeable to a junction at Ludlow Siding. Smith chose the junction as headquarters

by Mary Frances Strong

photos by Jerry Strong

The Tonopah-Tidewater Railroad was Ludlow's life line until operations ceased in 1940. While the rails were salvaged soon thereafter, ties along some segments remain in place as if the rails had been claimed by evaporation.



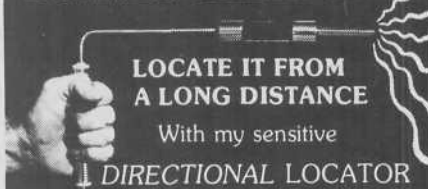
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for the Tonopah-Tidewater Railroad and Ludlow's "great days" began.

Wash Cahill, Manager of the project, set up his private railroad car at Ludlow and men and equipment soon followed. The next two years were fraught with problems for the railroad. Important among them was the lack of water. Springs were unknown in the area and all water was being hauled in by railroad car (16 cars daily or nearly 170,000 gallons). It was emptied into a cistern, then pumped into storage tanks from which it was distributed to the railroad yards and town.

A number of wells were drilled in various locales, ranging in depth from 65 to 1084 feet. All were said to be unsatisfactory or salty. The reports on the deeper wells are scanty, though seem to indicate the water was good. The high cost of pumping from such depth in the early days is probably what made them "unsatisfactory," rather than the quality of the water.

The Tonopah-Tidewater Railroad was completed October, 1907 when the last spikes were driven at Gold Center, three miles south of Beatty. This was far short of the terminus planned at Tonopah and was largely due to the depression called the "Panic of 1907."

Though numerous problems and delays had plagued the building of the Tonopah-Tidewater, Manager Cahill was a man who liked to have a good time. He also

felt his men should share in his pleasures. Since he enjoyed dancing, it became the most popular pastime with local residents, workers and train passengers joining in the festivities.

Ludlow had rapidly grown into a small town encircled by the balloon track of the Tonopah-Tidewater. A complete railroad shop had been built along with homes for the employees, a school and church. The two-block business district housed general stores, hotels, cafes, garages, bath house and auto camp. Entertainment had to be of local origin and a tennis court, several pool halls and dance hall attempted to provide such diversion.

The railroad men were a happy-go-lucky group and not above "pranks and hell-raising." Word of the good times to be had at Ludlow lured people from other communities into riding the trains specifically to attend the special dances. "Custom trains" were often approved by Cahill for these affairs which sometimes lasted all night.

One story of the ingenuity of the fun-seekers involves the lack of liquid refreshments for a scheduled dance. It was learned that a shipment of whiskey barrels would be on the southbound train from Goldfield to Los Angeles that evening. How it was arranged is not known, but as the train passed through Ludlow a barrel rolled out of the baggage car into the waiting arms of the dance committee. Other "lost" whiskey shipments were subsequently reported.

Ludlow continued to prosper. Following World War I, though faced with many misfortunes, the Tonopah-Tidewater remained in operation. There was hope that mining would once again come into its own. During the '20s, the railroad managed to limp along on reduced activities from various mines on its 250 mile route, besides offering passenger and pullman service to Beatty. However, the great bonanzas were over. The Tonopah-Tidewater, as well as Ludlow, had reached and passed their zeniths.

The great depression of the '30s and a disastrous flood, which washed out miles and miles of track, brought the problems of the railroad to a head. An application for termination of operations was filed in 1938. Protests were made and delays granted, but on June 14, 1940 operations on the Tonopah-Tidewater ceased.

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Originally the Cottage Inn Hotel, Ludlow Post Office makes its fourth home here. Postmaster Fern Hines has refurbished the interior on her own initiative. The building has been condemned and the Post Office will move to a new location.

depends on tourism and they are attempting to give as well as receive. An area has been set aside for free overnight parking. It is not a developed site but is a welcome, safe place to stop, if night and fatigue find a traveler in the area.

It is comfortable to know that C. B. Channel 9 is monitored 24 hours a day. This is good news for the hundreds of rock collectors visiting the many gem fields within a 20 mile radius of Ludlow. Help can be obtained, if a breakdown or emergency occurs. We talked with several people in Ludlow including Don Sching-eck, the town's General Manager. There is "new vigor" in Ludlow.

South of the railroad tracks lie the early-day cemetery and enormous trash dump. Bottle and relic collectors have made some good finds here. Visitors are welcome to browse around the old town as long as they "look and not take." Digging in the old dump is permitted but one must fill their holes. No digging is allowed within the townsite.

In the course of a pleasant talk with Mrs. Fern Hines, postmaster, she pointed out and identified some of the old buildings and told us many interesting facts about Ludlow. "See that old house along the railroad tracks," Fern asked. "A former railroad worker bought it recently. He has come back here to spend his retirement years."

Little Ludlow, on the Great Mojave Desert, may not appear to be a likely candidate for a retirement home. However, there is clean air and wide-open spaces in a setting among the ghosts of the past. More and more people are attempting to leave crowded, bustling, nerve-shattering cities where they have spent a great deal of their lives. They are looking for a slow-paced way-of-life far from the crowds.

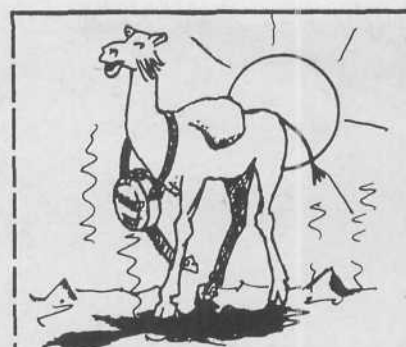
This is what the Desert enthusiast is seeking during his weekend trips. Ludlow and its environs can offer this and more. No longer a "town too dry to die"—Ludlow has new blood and a place in the future!

From a reported population of near 500, Ludlow dwindled to a mere handful of residents. Gone was the purpose of the town—now left high and dry. It struggled along through World War II, after which it benefitted from the increase in travel along old Highway 66. The next two decades saw little change in Ludlow. Empty buildings remained along Main Street and, eventually, the last store closed. It looked like Ludlow was about to die and blow away.

In 1962, Cameron and Luther Friend purchased the townsite and the scene today is quite different. Lack of water was still a problem and, unless one owned a railroad, the cost of hauling it was probably becoming prohibitive. Cameron Friend water-witched the area and a well was drilled on the site he selected. Good water was found at 650 feet though it is a bit warm—around 78 degrees. At long last, after 91 years, Ludlow had water. With the ability to pump over 46,000 gallons of water daily, there is no longer any danger of Ludlow dying of thirst!

A new freeway, Interstate 40, has been completed and is routed immediately north of Ludlow. Off ramps give access to modern service stations operated by those "friendly men" shown in television ads. An attractive restaurant is a cut well above the old diners and a motel offers overnight accommodations.

Townfolk realize their life-blood de-



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Harry Oliver

"The old Mirage Salesman"

"THE CHARACTER and temperament of an age as well as its common sense are reflected in its laughter." So recorded Dr. J. C. Gregory in his treatise on the sense of humor. He said, "The way men laugh and the things they laugh at

reflect their tastes, thoughts and sympathies. Society offers its pulse in the nature of its laughter." Harry Oliver is one of the finest illustrations you could find of these observations.

Harold G. Oliver was born in Hastings,

Minnesota, April 4, 1888. That was the year of the big blizzard. Harry once told me, "All that cold and snow is why I love the desert." That winter thousands of Indians froze to death on the open plains. The snow was so deep in Hastings that the doctor's horse couldn't pull the sleigh. Harry said that six big lumber-jacks pulled the sleigh with the doctor up the snow-bound hill to the Oliver home.

Frederic William Oliver, his father, ran a trading post. When the Civil War broke out, he padlocked the post and went to war. After the conflict, he found that Hastings was no longer at the head of navigation on the Mississippi. Twenty-one miles north of his trading post, St. Paul had become the big town.

The Olivers were all ardent Mark Twain fans. Harry grew up in a Mark Twain world with big oak trees in the back yard, flying squirrels and home made rafts on the big Mississippi. He knew and mingled with the steamboat men, the woodsmen and the trappers. Shack and shanty life became part of his soul. To me, Harry Oliver was all the Mark Twain characters rolled into one, with Tom Sawyer casting the tallest shadow.

On March 27, 1943 Harry Oliver paid 10 dollars to the late Helen Hyde Clark for a small parcel of land at Thousand Palm, California, and by 1946, he finished building Old Fort Oliver where he launched his famous Desert Rat Scrap Book. Some of the early editions, I am told, are worth 50 dollars. Harry put out 44 editions, 11 pouches, of four each, the first coming out in the fall of '46, "Camp Edition—Saddle Bag Size."

Harry admitted that he stole a lot of his material. He improved on it, thereby doing the original author a favor. "I can cut 20 lines down to a line and a half," he said, "and make the fellow that wrote



Harry Oliver, Editor of the Desert Rat Scrap Book, and his beloved dog, Whiskers. Harry often referred to Whiskers in his paper as, "The best dog I ever worked for." Whiskers passed away Christmas, 1960.





This photo shows the damage done to the old Fort by vandals when Harry retired.

the original story think my line and a half is where he got his idea."

Oliver's Scrap Book was printed on a light tag-board and billed as "the only newspaper in the world that you can open in the wind." It was folded to form five

page (a neat trick in itself), of varying sizes. Until inflation came along, a line at the top read, "Price ten cents . . . Only one measly thin dime." The bottom line on the last page read, "POSTMASTER—DO NOT—send this back—if the sub-

scriber don't know where he lives, I sure as heck don't either."

Harry said, "I never did learn to spell, but I did learn the typesetter's rule: Set up type as long as you can hold your breath without getting blue in the face, then put in a comma. When you gape, put in a semi-colon, and when you sneeze that's the time to make a paragraph."

Oliver often scrimped and struggled to keep his paper in print. "One time, in order to get money to go to press, I took the job as janitor of the Thousand Palm School." There was a plaque on the wall which read, "Harry Oliver Swept Here."

Harry set the pace for his publication with the first issue in which he printed his "Editor's Prayer." It said in part: "Dear Lord, I only want you to go 50-50 with me. If you will keep me from getting greedy, I will try and give my 60,000 readers (Lord, I stretched it a little) clean, good fun and fan their interest in many wonderful things you have put out here in the desert.

"I will keep people interested in the plants, animals and the beauty of Your desert. I will say nice things about the folks that love the desert and just not talk at all about those that don't understand it.

"I will tell only authentic lies. I will



Whisker's doghouse, built so he could "walk in with his tail up."

be the best gold-dern publicity agent for Your desert You ever had."

Harry Oliver has become a legend of the wind, sand and ink and has become as much a part of the desert as the grizzled prospectors, the gila monsters and the lost gold mines he wrote about. Oliver looked at life as a piece of Swiss cheese. "There is a lot of stuff to it, but a lot of space for the wind too."

Norman Vincent Peale often quotes some of Harry's philosophy. In one of his books he says, "A friend of mine by the name of Harry Oliver lives in the desert near Palm Springs in California. He is quite a character. He got tired of people throwing beer cans along the highways through the desert and organized a campaign to clear them away."

Always an exponent of the desert's beauty, he is credited with the first anti-litterbug campaign in 1956. He unleashed his bitter pen by remarking, "The highway between here and Wickenburg is beautiful this time of year. All the Kleenex bushes are in full bloom right alongside the road." He followed with, "The wild-flowers at Fort Oliver where so thick this spring that you can barely see the discarded beer cans."

When a subscriber complained that his news was not too fresh, Harry boasted, "The news in this paper has been tested by time. You should subscribe for this paper and save the packets for junior . . . cuz no one is going to be crazy enough to print stuff like this when I'm gone."

These are choice Bits of Wisdom from the Desert Rat Scrap Book:

"A Fort Worth newspaper printed a personal ad that read, 'If John Blank, who deserted his wife and baby 21 years ago, will return, said baby will knock hell out of him'."

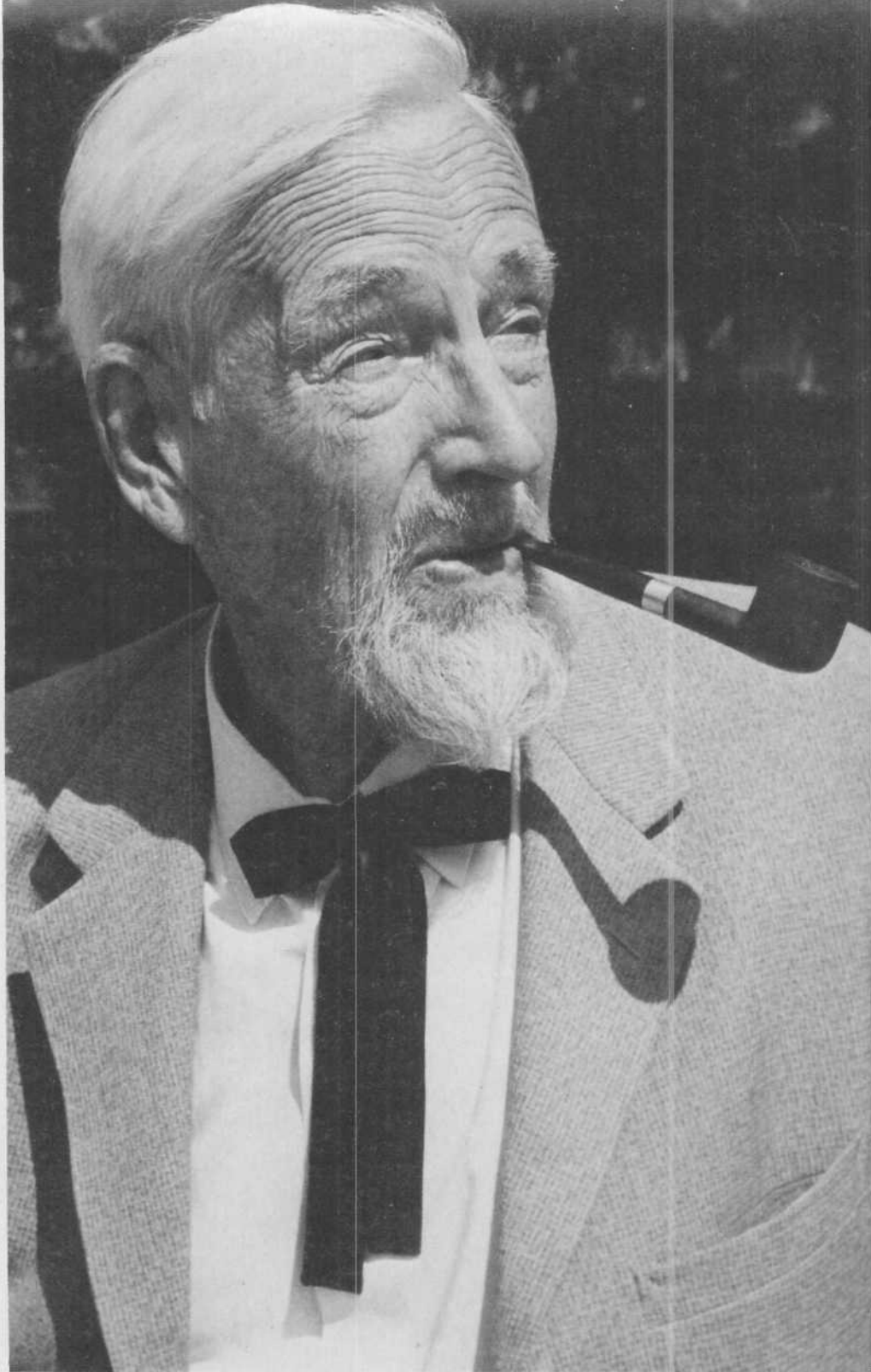
"Your editor finds that now-days to be successful, the world expects you to make money too."

In a story about wind: "Talking about heavy wind . . . once, over at Garnet, the wind blew a cook stove 14 miles, and came back the next day to get the lid."

"Liminating Lem, Desert efficiency expert, sez worst part of doing nothing is . . . you can never take time off."

"At a desert road, at Patagonia, Arizona, there is a road sign which reads, 'Take care which rut you use. You'll be in it for the next twenty miles'."

"Take a drink of whiskey, it will make



This portrait of Harry Oliver was taken at the Motion Picture Home a year before his death on July 4, 1973.

a new man out of you. Then, the new man should have a drink."

"Dry Camp Blackie has been prospecting around this desert for years. One day in July, a drop of rainwater hit him on the forehead. I had to throw two buckets of sand in his face to bring him to."

"In baiting a mouse trap with cheese, always leave room for the mouse."

"Never speak loudly to one another unless the shanty is on fire."

Sometimes, to be different, Harry gave credit to the original author. It was Bat Masterson, he said, who died at his newspaper desk in 1921, leaving this message in his typewriter: "There are many in this old world who hold that things break

Continued on Page 20

Growing Copper

by Eddie Rankin

CHRIS G. MULLER liked the looks and price of a copper mine 22 miles east of the old mining town of Quartzsite, Arizona and stepped right out and bought it! It is the place where Mr. Muller and his partner, Clark Tolly, *grow* copper. That's right, *grow* copper.

When Mr. Muller bought the copper mine, he had good reason to trust his own judgment. He was backed with more than 40 years mining experience in the West. He had been mill superintendent at the North London Gold Mine at Alma, Colorado; superintendent at the Dos Cabezas Mine in Arizona; had prospected and

mined in the Wiley Wells area; had mined Floreta Manganese in Deming, New Mexico—all before he bought the Arizona mine.

Mining was not all Chris has been concerned with. He had begun "inventing" while still in his teens. One project was a radio (Wireless, it was called) which had to be kept as a hidden gadget in the pre-war years around 1916. He has a number of patents. He has a motor design of his own said to be superior to rotary. His mind is always at work finding new ways to produce useful results.

The partner, Clark Tolley, a native of

Wisconsin, had a preparatory background also. He has mined in California, Nevada, New Mexico, Colorado, and Arizona. He is a highly trained electrician, as well. He had met Chris Muller in 1936, but renewed his acquaintance in 1960 when they formed the partnership to process copper at the Muller Mining Co.

The operating center of this company is unusual in appearance compared to other mining sites. Rising from the flat a ways out from Quartzsite and a mile south of Hwy. 10, are two mobile homes; two travel trailers; a huge water tank; assorted mining equipment; and a number of ramadas with tin roofs to protect the men and machines from the hot Arizona sun. This is the place where the men process their copper, or, more exactly, produce high grade copper from low-grade ore.

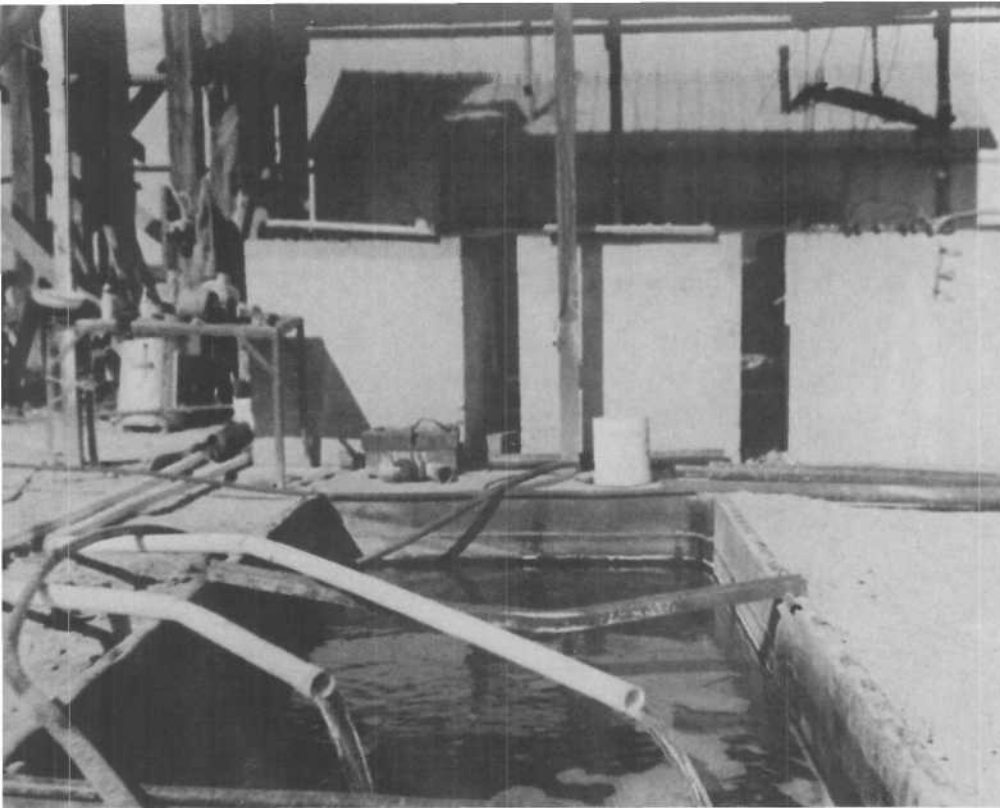
It all came about, as many new things do . . . by accident!

Chris had been experimenting with ideas of using chemicals, when, one day, a helper mixed up the jar of chemicals which had some copper ore in it. Chris set it aside, planning to toss it out for he knew what was in it and believed it to be just waste. When he got back to it, and happened to give it a close examination, he was startled. There was more copper in the jar than he had put in there originally! What had been a couple of ounces was now more than eight ounces of pure copper. He had "grown" copper in a week or 10 days.

This chemical-electrolysis process of producing payable copper ore has developed into a much more sophisticated procedure. It is a tightly guarded secret.

Desert, Feb. 1974

Clark Tolley [left] and Chris G. Muller, partners in the Muller Mining Company, reflect in their faces what most prospectors and miners have, peace of mind, health, happiness and a living hope in the future.



Mixing Tank where water and chemicals are mixed before entering Leach Tank No. 1.

Offers have been made, but the Clark-Tulley formula is not for sale and it not easy to duplicate.

It would seem to some that this all was a bonanza of Lady Luck. But it has lots of hard work behind it. Taking a glance at the procedure, a person begins to understand why every miner does not have the same "luck."

First in the process is the work at the copper mine. Chris, Clark, and a hired man or two do the surface, or open-pit mining, using dynamite, a few hand tools, and a skip-loader. The ore is brought down the eight miles of dirt road to the business site and stored before it is crushed into pieces egg-size or smaller. Next, the crushed ore is placed into a leaching pool approximately 20 by 60 yards and more than 10 feet deep. Ten tons are placed in the pool at a time. The ore must remain in the pool for days, and more ore can be added from time to time. The full process takes 30 days. They add ore into the pool until they have more than 100 tons. Then, after 30 days, they clean out all of the processed ore and start a new batch.

There is circulating water mixed with chemicals going into the first leach pool. Next, the liquid results are siphoned off into a second pool. The second pool isn't as large as the raw ore leaching pool and has the appearance of a large swimming

pool. The water, chemicals and copper give the pool a most beautiful greenish-blue color.

The second pool is more or less a settling pool and from this pool the liquid is pumped into "vats" which resemble large wet cell batteries. They have three rows of 12 each of these vats and are now building more. The vats are approximately four feet by four feet by four feet and

placed in rows. In the vats are sheets of very thin copper or tin. They are like the plates in car or truck batteries.

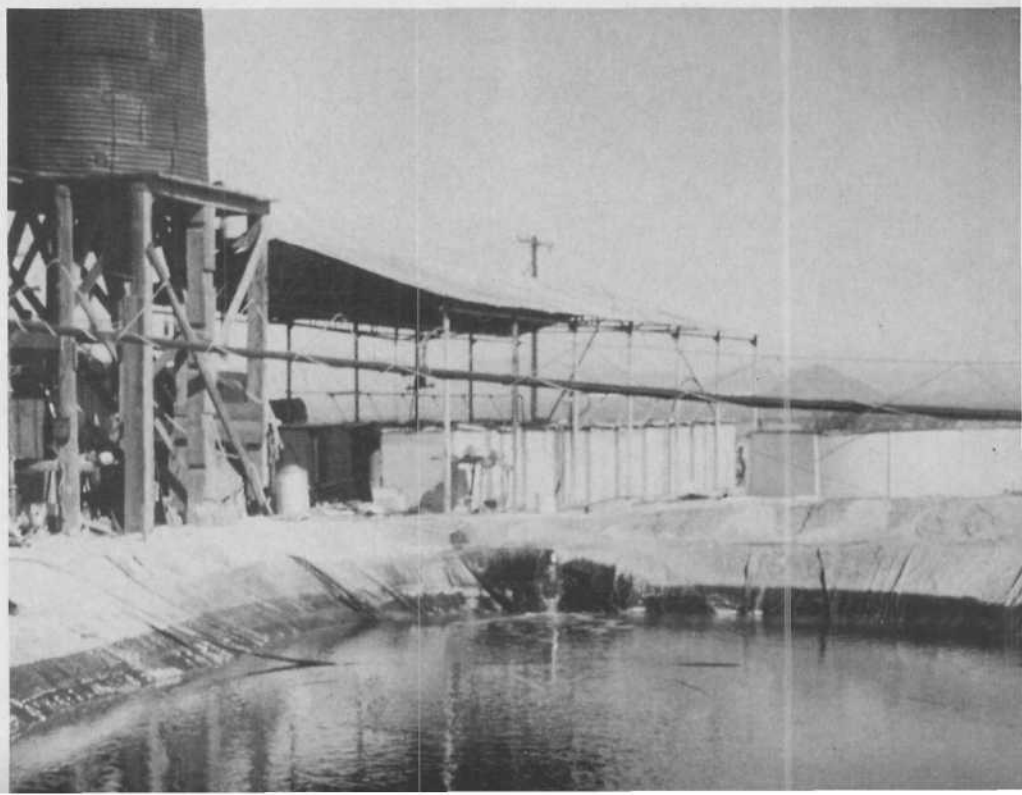
Next comes the "growing" of copper or the mystery of the chemical-electrolysis at work. Through this process, the copper in the liquid is attracted in solid form to the plates. The almost paper-thin plates soon have attracted enough copper that the plates are a quarter, three-eighths to one-half inch thick of pure copper. The plates are removed when they reach the thickness desired. Ready for market, the plates are packed and shipped.

The power needed for all this operation is tremendous. The partners bought two huge diesel engines from the Queen Mary, Long Beach, California. They had them hauled to their Quartzsite location. Tolley, the electrician, had a challenge, for sure. The engines, rigged to generators, produce D.C. 230 volts and 1000 amps. The huge motor (one is a spare) must run around the clock 24 hours a day, seven days a week.

Chris and Clark run just about the same way. But growing copper is new and exciting so they are getting along very nicely, thank you, and do not complain of the heavy and long work involved.

They have found that in their case, "it pays to fool Mother Nature." Pure copper is needed in this world. □

Large leaching pool that is colored a brilliant blue by the chemicals.



THE PINT-SIZED cottontail that resides in the desert regions of the West has his problems. Only about half as big as the eastern woodland-prairie variety, he is still considered an extremely desirable bit of groceries by coyotes, eagles, weasles, hawks, owls and snakes also dwelling in the same region, and it takes constant vigilance on his part and some mighty fast footwork to stay off their menus.

In this respect, let it be said that his equipment, developed down the ages by the rabbit tribe, is highly satisfactory in his neighborhood too, consisting as it does of waggly ears that scoop up sound like funnels, eyes set around the side of his head permitting an almost 190 degree view of the scenery, a good sense of smell, and a pair of catapults for hind legs. All good for a frenzied chase.

But it takes more than this standard rabbit equipment to survive in the desert, for here he faces the serious problems attendant upon extremes of temperature and lack of water. In fact, most of the 19 months or so of his expected lifetime is spent hardly a hop away from heat prostration, desiccation, sunstroke during the summer days, chill temperature-drops at night and the lethal low temperatures desert winters can dole out.

Yet, this brand of rabbit can be seen frolicking up and down the eroded hillsides, skipping through dry arroyos and rabbit brush of the alluvial fans, and even out into the sandrift areas where protective shrubs are almost entirely absent. It would therefore seem apparent to one and all that the production line must be a busy one to keep the terrain so well supplied.

Indeed, the wooing season does run about eight months in Arizona. Biologist Lyle Sows finds that it gets underway in January and continues to late August which, considering the gestation period of about 30 days, would make some five litters a season a distinct possibility. With an opportunity like this, and in light of the fact that the precocious youngsters develop fast and may start their own family raising at about five months of age, it would seem that the result would be such a bumper crop of rabbits yearly that Arizona coyotes and other predators would have chronic indigestion.

As is so often the case in nature, however, there are offsetting factors. The main

one in this case is that unlike the eastern variety which is almost certain to have three or four and maybe more offspring per litter, the little desert cottontail has the lowest score of the tribe, normally producing only two, maybe three. Oddly enough, weather conditions apparently seem to make little difference. In normal years, when the Arizona winter rains fall, the season gets underway promptly as is to be expected and the rabbit families prosper amid the spring vegetation. Yet, Sows found that in other years the rains might be delayed, but not the desert rabbit social calendar. Youngsters arrive

Mrs. Desert Cottontail, it seems, digs her nursery hole to her own taste, it taking about two to three hours to complete the job. The site may well be a spot of exposed ground with no protection—a silly selection on the face of it since there might even be some sparse shrub growth nearby. Indeed, zoologist Margaret Skeels, observing that one expectant mother had done just this, decided that here was a "rabbit brain" at work if there ever was one. She had to reverse her opinion, however, when the rabbit proceeded to plug up the entrance carefully with some five inches of dirt, mixed with grass and

THE DESERT COTTONTAIL

by K. L. Boynton

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on schedule throughout the then driest part of the year, surviving somehow on the poor food supply, and just as the lush vegetation following the summer rains become available, reproduction ceases.

Which goes to show that Arizona cottontails don't subscribe to the scientific idea that there ought to be a correlation between rainfall and breeding, even though they have good examples in the California desert rabbits. There, biologist Henry Fitch found that the rabbits adjust their affairs far better, quite sensibly producing their offspring in late fall and early spring when green forage is abundant, and ceasing operations with the advent of the dry season.

rubble, and then flattened a small wad over the surface, finally blending the whole works into the surrounding desert terrain. The nest location simply vanished from sight. And Mrs. Cottontail, dusting off her paws, hopped away

So far, so good. But what happens when the nest becomes a nursery with youngsters to be cared for and fed? Wouldn't such activity be at dead giveaway of nest location to predators?

Puzzled, a three-man team of biologists, M. Zarrow, Victor Denenberg and Clark Anderson found the rabbits had a system to handle this problem. It seems that youngsters are left alone in the covered nest, the mother staying away, to

come only once ever 24 hours to nurse them—a very odd situation since most mammal mothers stay close and the young dine frequently, particularly in the first few days. Furthermore, no dallying at the rabbit table is permitted. Mrs. Cottontail arrives on schedule, and at the end of three minutes (or even less) the dinner hour is over, to the dismay of the youngsters, simply terminated by the abrupt departure of their mother.

Callous as this seems, it turns out to be a first class adaption to the barren desert, serving as an extra protection against predators. Since the mother makes only

But the advent of offspring, even via a neatly adapted system such as the one developed by the desert cottontail, is only the beginning. Once they are here, they must be able to endure the rigors of desert-living, if their species is to prosper. True enough, as a tribe, rabbits are great burrowers and thus can retire underground and escape the intense solar radiation. But these crazy little desert cottontails are as apt as not to put in much of the day above ground, even during the period of maximum heat.

Nor do cold desert winters faze them.

Zoologist David Hinds, intrigued by

temperature tolerance, allows the cottontail to remain comfortably active since he contributes little metabolic heat to the heavier heat load he is taking on from the hot air about him. And even panting for evaporative cooling may again not be too costly since his lowered basal metabolism reduces energy demands elsewhere.

All the while, excess heat is constantly being unloaded via his ears, which play a major role in his thermoregulation. They account for 14 percent of his total body area and make a good big place for the dissipation of deep body heat brought to their surface by a network of blood vessels. Interesting enough, the cottontail can alter the blood flow to his ears by vasomotor control and thereby determines how much heat needs to be unloaded at the time.

There is a limit of course to all this, and the upper critical body temperature for these rabbits is higher than for most mammals—104 degree F. (their normal temperature is about 101 degrees) and when this 104 degrees is reached, relief must be found. Even in the shade there is heat stress, the air temperature near the ground under a palo verde, for instance, running about 104 degrees F. to 107 between 11 A.M. and 7 P.M. on a June day. And if the rabbit's temperature keeps on rising, a burrow must be sought and quickly, for 112 F. is fatal.

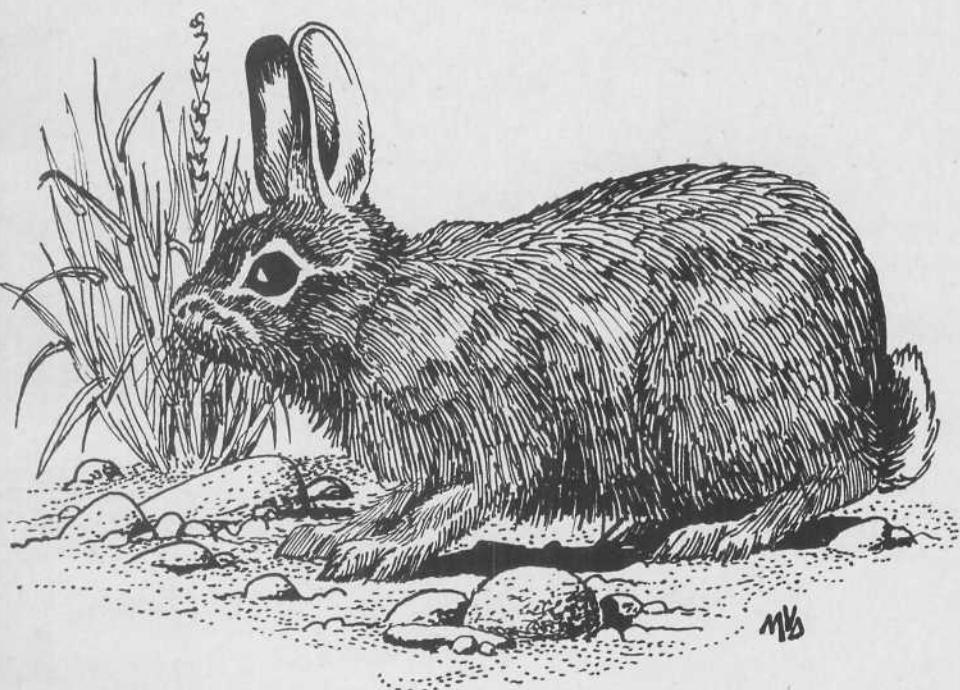
What about the wintertime?

Now the cottontail body reverses some processes—this time to conserve warmth. His basal metabolism rate steps up so that more heat is generated; loss of heat via the ears is markedly decreased by changes in their conductivity and although the desert cottontail is not dependent as much as others of the rabbit tribe (i.e. the Varying Hare) on coat changes, his hair does become longer, particularly on the belly region. There is a decrease in water loss with the cooler air temperature which further conserves heat in the body, a distinct advantage evolved for the cold season. With these changes taking place gradually as the weather cools down, the desert cottontail is ready in plenty of time for winter.

At the year moves into spring again, the cottontail's body begins to respond with appropriate changes until, when the summer is upon the land, he's set and ready to cope with all its problems. Strictly a desert product, he's right at home any time of the year.

□

19



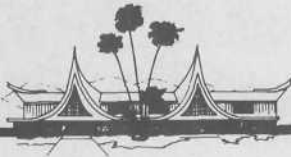
one trip to the nest a day, and spends such a short time there, the chances of predators finding it are cut down considerably.

An interesting behavioral corollary to this is that these rabbit mothers, when tested, did not show any infant-retrieving instinct. The result of "lost offspring" is just not on their agenda—a surprising point of view, since even the most timorous mouse will retrieve hers. The investigating team accounts for this disinterest by the fact that rabbit youngsters, corked up in the nest, can't get out anyhow, under normal conditions, until they reach a certain age and strength. Hence the retrieval instinct on the part of the mother is not necessary for the survival of the young.

Desert/ Feb. 1974

all this, set about finding what seasonal changes took place in their bodies that would permit them to handle both desert heat and desert cold, and, after a lot of field and lab work, he came up with the answer only recently. It turns out that in summer the cottontail's basal metabolism rate is set down some 18 percent lower than the winter rate, and this slow-down in heat-making machinery operation is the first big step towards conserving energy and keeping the animal cool. At the same time, the rabbit becomes able to stand a much higher body temperature before the critical point is reached.

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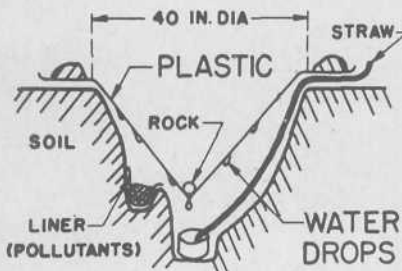


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HARRY OLIVER

Continued from Page 15

about even for all of us. I have observed, for example, that we all get the same amount of ice. The rich get it in the summertime and the poor get it in the winter."

Harry admired the American Indian. Harry was one-quarter Cherokee. He used to be one-eighth Cherokee, Scotch, Irish, Dutch and one-half English. He rearranged this balance by giving his English blood to the blood bank. "I told the blonde nurse," he said, "to cut it off as soon as any Irish or Indian blood showed up, and she did. Losing the English blood has helped my sense of humor. I didn't multiply the Indian blood enough to lose any of my beard. My cat and dog love me better with a full beard. They get up there and rub against it. Can you hear it?" He often quoted Indian proverbs such as, "Do not use a tomahawk to remove a fly from your friend's forehead." Also, "Keep a green bough in your heart and the singing bird will come."

Harry and I went into Death Valley in November, 1970. We had a cabin at Furnace Creek Ranch. When interviewed he said, "I've lived in various deserts for years, and I can tell you that Death Valley is King. I, as most people, like the mystery of the desert. The desert tolerates the invasion of people, but it never reveals its secrets."

"The desert constantly changes its face," he said, "But it never changes itself. Those hills out there, they're mustard-colored in the morning, ochre later in the day as the sun keeps changing its mind. The purples are the important colors. There are millions of purples accentuating the shadows."

Oliver compared the desert to a capricious woman. "You can't depend on it,"



he said. "It's going to do what it wants to do. One moment you are sitting in the warm sunshine and the next moment a cloud will come out of the north, spotting the valley floor and the hills as it moves. Soon you got a desert thunderstorm from out of nowhere. It's not anything that a man is going to handle. The desert gives the orders and the man fits the picture, or he might as well give up."

Harry enjoyed every minute of his last visit to his beloved Death Valley. Proudly he stood as he was given a standing ovation at the annual Burro Flapjack Sweepstakes at Stove Pipe Wells. Last November (1973), Harry Oliver was honored with one long moment of silence at this event which he originated.

In 1965, nearly a quarter of a century as Fort Commander, publisher, distributor, lamp lighter, editor, artist, gardener, and janitor, Harry bid farewell to his beloved Fort Oliver, retiring to the Motion Picture Home in Woodland Hills.

The old Fort remained vacant for nearly six years. The wind and sand took their toll of the exterior along with the brainless vandals who broke every window and ripped the doors off their hinges. It was gradually returning to the earth from which Harry made the adobe bricks. Its proud ruins became an eyesore. A few critics termed it a "derelict." Condemnation proceedings were put in motion by California's Riverside County building officials. Only through a gallant battle by Harry's daughter, Amy Fern, and her husband, Emily Deily, was the Fort saved.

Besides restoring the Fort to its original state, they added a much-needed room for

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Harry Oliver with his faithful 1928 Ford Station Wagon.

living quarters. On April 16, 1972, more than 500 people showed up for the official rededication, including Harry's old friend from "Seventh Heaven," actor Charles Farrell. Harry told the sun-drenched visitors, "Do what you please, but accept the consequences too. Take what you want. Sure they will shoot at you if you do, but most of them are pretty poor shots." He added, "Here in the desert you can dream big dreams and if the sun hits that old noggin of yours, the bigger the dream."

Harry Oliver, like all master showmen, had a great sense of timing. He was born in the biggest blizzard of the century and he died on the Fourth of July, the day he predicted he would. Farewell dear friend. □

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been to Palm
Springs.**

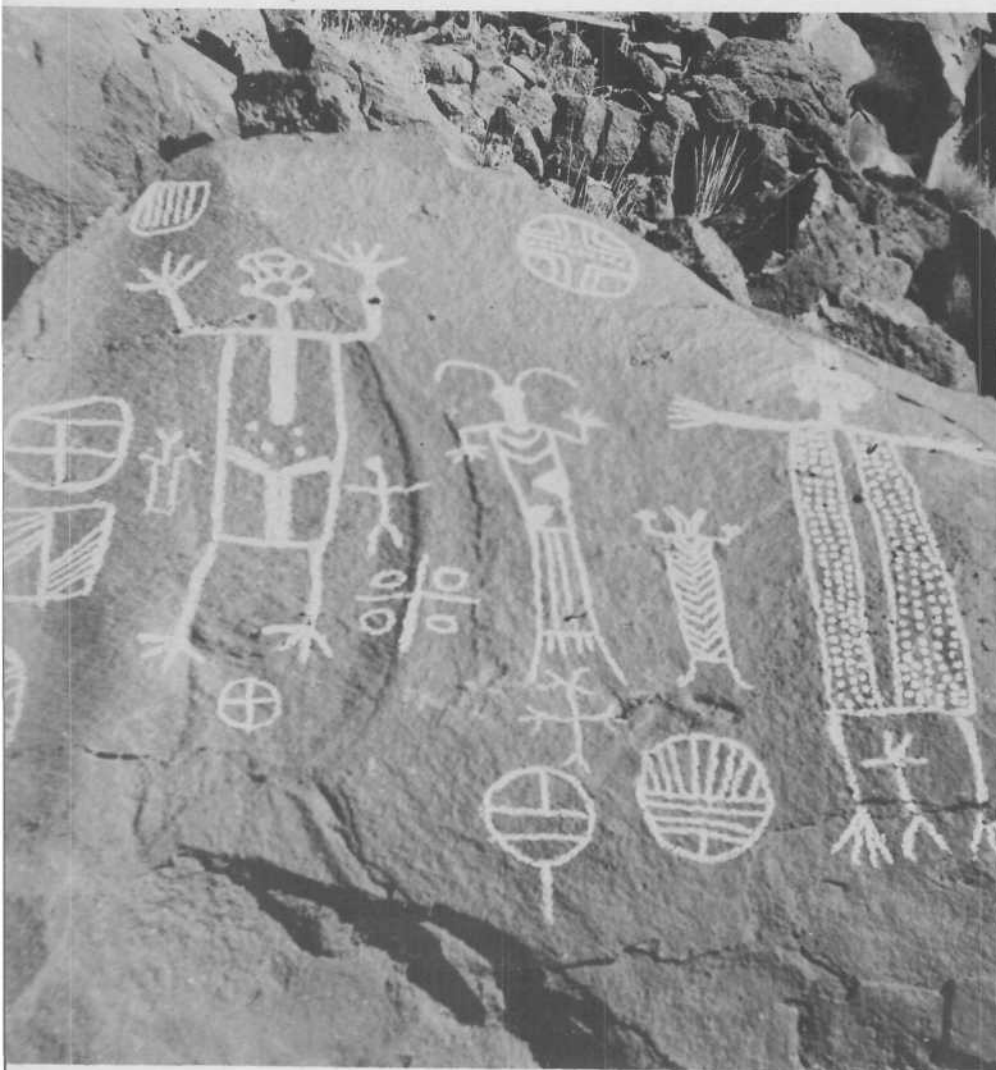
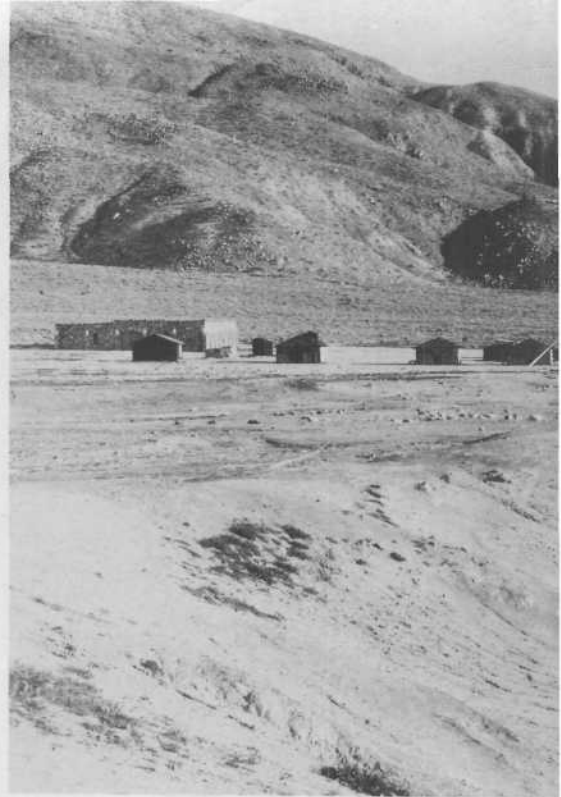
Tram cars leave
Valley Station
daily from 10 a.m.
to 7:30 p.m. Last car
down the mountain at 9 p.m.
Always plenty of free parking.
Special group rates. Open daily.

Palm Springs Aerial Tramway

Ride 'n' Dine Phone (714) 327-9711

Pre-World War II photo
by Burton Frasher of Coso Hot
Springs, when Inyo County
resort was booming.
Photo from collection
of the author.

Rock ART of THE COSO MOUNTAINS



PERHAPS ONE of the most protected areas of the California Mojave Desert is the Naval Weapons Center—formerly the Navy Ordnance Test Center—adjacent to Ridgecrest.

Here, since World War II, the U.S. Navy has had a vast desert installation. And here, because of the base's strict boundary rules, an assortment of extremely precious desert values have been protected during the period of the heaviest use and the most desert vandalism.

Contained within the Naval Weapons Center is the finest collection of Western Indian petroglyphs open to public scrutiny and study. A book has been written about this area of petroglyphs, an area called: "the most extraordinary concentration of prehistoric rock writing in the New World."

Because of its scope, because of the research done here by the leading rock writing expert in the Western United States, and others similarly qualified, because the area is as protected as it is, because there are planned tours and visits to the region, the petroglyphs of the Naval Weapons Center area deserve major consideration and interest.

The Maturango Museum, located within the Navy base at China Lake, is the key here. The Museum offers displays, has a membership that provides tours and information, and backs a publication program.

Typical of fine petroglyphs to be found in the Coso Range.



The book that deals with the petroglyphs is titled, *Rock Drawings of the Coso Range*. The authors are Campbell Grant, James W. Baird and J. Kenneth Pringle.

Grant, a research associate in archaeology at the Santa Barbara Museum of Natural History, has written two previous books on the subject: *Rock Painting of the Chumash*, and *Rock Art of the American Indians*. An illustrator and artist, he is considered a foremost authority on the subject.

Baird and Pringle are scientists attached to the Navy base.

While the book suggests that it is a popular work, it is not. It is a scientific paper and while it will have interest for many of the lay persuasion, it assumes a background in anthropology and archaeology, geology and biology that is not held by everyone who would be interested in the rock writing.

The most interesting assumptions that the study of the area reveals is that the region was once more richly supplied with water—and was heavily inhabited with bighorn sheep. Much of the rock writing deals with sheep, and the authors feel that the many pictures of sheep indicate tally notes, the hunting of sheep and the ritual and magic of the hunting process.

Because of the presence of the bow and arrow in some of the rock drawings, it is assumed that the majority of them were made after a period 100 years after

the birth of Christ—or at least that's when the bow and arrow is thought to have replaced the atlatl in the region.

The Maturango Museum at China Lake acts as an informal host to the rock drawings. Protected by the U.S. Government, the drawings are best interpreted by the Museum. The Museum offers as its objective: the promotion of increased diffusion of knowledge and appreciation of the history of the Upper Mojave Desert.

It is open to the public on weekends, 2 to 5 P.M., and permission to visit the Museum and talk with the personnel there can be obtained at the Main Gate of the Naval Weapons Center. The address is P. O. Box 5514, China Lake, California. The telephone number is (714) 939-2368.

Memberships in the Museum are \$5 for active membership, \$10 for family membership, and entitles the holder to the monthly newsletter, attendance in field trips, lecture admissions, special events such as field excavations.

Among the most interesting field trips sponsored by the Museum, of course, are those in the fall and spring to the petroglyph areas. Here, sometimes in four-wheel-drive caravans, the tour members are shown various concentrations of rock drawings, including many of the incredible bighorn sheep petroglyphs, and hear an interpretive lecture on the subject. Such tours usually include short hikes in the general area,

lunch and fellowship of a kind that only such a subject and such a region can provide.

Another area often visited by the tour groups at the Naval Weapons Center is Coso Hot Springs, an ancient hot water and mud baths site that later was famous because the mud and water was bottled and sold widely. There was a large resort here prior to World War II. Nearby is an abandoned cinnabar mining operation, one of three principal mercury diggings in California in its day.

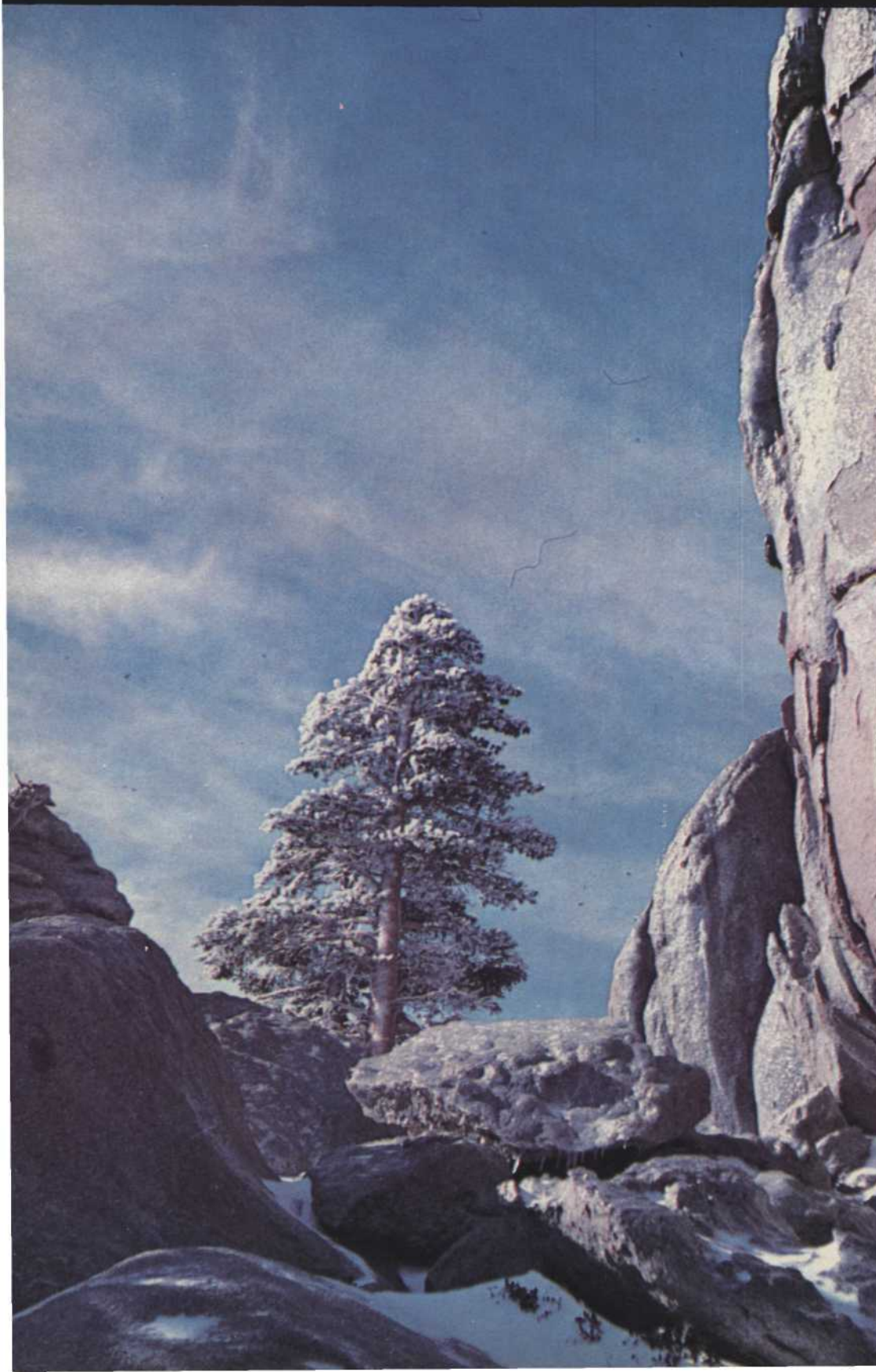
The Naval Weapons Center's Maturango Museum in China Lake serves well the area that it covers, just as the museums in Independence and Bishop serve the Inyo County region; and the museum in Bloomington, San Bernardino County, serves the remote desert areas of that county.

Anyone interested in saving the history, and the prehistory, of the desert should consider such an involvement as the membership in the Maturango Museum. The cost is small and the rewards are many and diverse.

For those who would write, membership application blank and information brochure will be sent.

This year, as a member of this uncommon Museum operation, perhaps you, too, will get a chance to see, first hand, the hundreds of incredible rock drawings in the ancient and remote Coso Mountains, a prehistoric library hidden and protected behind fences.

Snowshoe



**MOST OF AMERICA
TRAVELS TO WORK
HERE IS AN ACCO
RANGER WHO CA
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WE, DOWN AT THE
ABOUT IN THE WA
WHILE 8500 FEET A
FLOOR IS THE SI**

Clouds cover the mountain this morning. They look to be down to around 4000 feet. This is our first major storm of the season.

The tram car is ready to take us up. Darryl Crawford, my partner, has just arrived and we're ready to go. The two of us work out of the Long Valley Ranger Station in California's 14,000-acre Mt. San Jacinto Wilderness State Park. The station is located at 8400 feet and can be reached either by the Palm Springs Aerial Tramway or by seven and one-half miles of trail from the mountain town of Idyllwild. There are no roads into the area. Darryl lives in Long Valley and commutes to our station everyday via the tramway.

e Patrol...

S WORKING FORCE
IN AUTOMOBILES.
UNT OF A FOREST
MMUTES TO HIS
AERIAL TRAMWAY.
LOWER LEVELS, GO
RMTH OF THE SUN,
BOVE THE DESERT
OWSHOE PATROL!

by
Jerry
Henderson

Color
Photos
by Author





Tramway visitors can stand on an observation deck and look down from their winter wonderland to the warm desert sands below.

The powerful 1000-horsepower electric engine is put into gear. Slowly our tram car pulls away from the landing and picks up momentum. The tram ride will give us an elevation gain of almost 5800 feet. We button our coats, pull up our collars. It'll be a cool ride up the mountain. The top of our car is coated with ice and must look like a giant Christmas tree ornament to those outside. Passing through the first layer of clouds, it begins to snow. The Valley Station is way below us and barely visible through the clouds.

At the 5000-foot level, our car begins knocking chunks of ice from the cable. Some hits the roof while the rest falls away from us looking like some kind of huge snow flakes. Clouds are all about us now. In front of us, icy fingers of rock jab into the cloud and disappear. Our world is silent now, but for the occasional clunk of ice falling on the roof. Behind us is the world of the automobile. We travel up into the future where the air is pure and carries the fragrance of Jeffrey Pine and White Fir. Particularly this morning will Darryl and I be greeted with a world made new, a world devoid of noise and contamination.

The car slows now as it pulls into the Mountain Station. The thermometer reads 24 degrees. The high today will

only be 26 degrees. We are on the threshold of the wilderness. It feels good to get up here. The Mountain Station offers the last civilized comfort to the visitor before he travels into the forest. Here there is the warmth of fireplaces and the taste of hearty food, but beyond, for the untrained and poorly equipped, lies cold, discomfort and even death.

Unfortunately, too many people believe that the warmth of the Mountain Station somehow extends beyond its walls and into the wilderness. Nothing could be further from the truth. We are reminded of this as we meet five youngsters coming up the trail. The bite of the cold and the fury of the wind is invigorating to Darryl and me, but the faces of the kids tell a different story.

They had come up last night, after dark, wanting to hike into the wilderness to camp. When I looked at their equipment and footwear, I could see that they weren't prepared to handle the cold. I had them camp out behind the Ranger Station for the night, and told them we would see if they still wanted to hike into the wilderness the next morning.

"Did you get cold last night?" I asked.

"No, we slept fine, but we decided to go home."

"Fine," I said, "Come back and see

us in the summer."

They were smart and lucky. Had they been at the closest camp, Round Valley, which is two miles away, they might have been a lot more than just cold.

Darryl and I proceeded to the Ranger Station. We had some hot coffee and prepared to meet the visitors who would soon be coming up the tram. As usual, a great many of those wanting to go camping were poorly equipped for the weather. Some we talked into going back. Still others insisted on going ahead.

Time to start the patrol. I'm anxious to try out the snowshoes that I had spent a week repairing. Stepping into the cold from a warm building is always a shock to the body. The temperature was 26 degrees and the wind 10 to 15 miles per hour. I took off my mittens to buckle on my snowshoes. I put my hands back into the warm mittens and kicked off down the trail. At first my face was cold, but my body was soon putting out enough heat so that I could take off my mittens and unzip my jacket.

When hiking in cold weather, it is important to heed some advice: do not get overheated for overheating and excessive sweating will soak one's inner clothes and make him much more susceptible to chill when he stops to rest. Wool clothing helps to guard against this as it retains its insulating qualities even when wet. A person's pace depends on his condition. A hiker should take short breaks and not push himself and keep in mind that he will have to go back every step he has taken to return to the starting point. If a person pushes himself too hard and too far, he just might not make it back at all.

A short distance past the station I pass the sign saying, "Permits Required Beyond This point." The permits are free, but all hikers and campers must have one to go beyond this point. Just past this sign is a large sign saying, "Warning—Lives Have Been Lost In This Wilderness. Do Not Proceed Unless You Are Properly Clothed and Prepared." It seems clear to me, but many people ignore it. Having come from a world made of plastic, they must think that the snow is just styrofoam. They don't realize that a day hike could easily turn into a struggle between life and death.

A group of people had started out

right behind me, but now they were some distance back. I was climbing up the switchbacks into Round Valley. The clouds were maybe 300 feet above me. My snowshoes glided through the snow and carried me up towards the clouds. Stopping for a brief rest, I looked around. Such sights and sounds. So much to observe. Frozen trees, clouds swirling about, squirrel tracks, coyote tracks. Just too much for my mind to grasp. Off again. A gust of wind comes up. Somewhere a tree cracks and moans but manages to hold.

Coming to a clearing in the forest, the surface of the snow is dotted with the proud crowns of young Lodgepole Pines. The Lodgepole is the dominant tree at this altitude. Looking away from the clearing into the forest, there are many young trees just barely showing their small branches above the snow. However, these young trees are White Fir and not Lodgepole. The White Fir grows well in the shade, while the Lodgepole likes the sunlight.

This is the ever-changing forest. The Lodgepole will establish itself in the clearings and on open slopes. Once they have grown tall and provide shade, the White Firs will move in and eventually crowd out some of the Lodgepole. Then, through the course of time, great White Firs will die and fall to the ground. New clearings will be made. The trees will rot and return precious material to the earth. Then, someday, there will be new young trees thrusting up through the soil searching for the sun. These will be Lodgepole Pines.

The ground is flat now. I weave in amongst the trees. Round Valley, at 9100 feet, is just a few hundred yards away. Up to my right, hidden in the clouds, is 10,835-foot Mt. San Jacinto. I'm in a cloud now. Willow wisps swoop down from the tree tops and swirl about me. Now I can see the meadow. It is clear for a second and then a gust of wind fills it with a dancing cloud. The cloud prances across the meadow with many fingers reaching out curling and swirling. As it goes it dusts the forest with snow and howls as it passes amongst the trees. I've reached the home of the Weather Maker and what a fine welcoming He is giving me!

I'll skirt the meadow now. I want to locate any campers and make sure they are okay. The first camp I come to has a



The Aerial Tramcar hangs high above the snow-clad boughs and provides the author with a unique method of commuting to work.

Photos Courtesy Palm Springs Aerial Tramway

good mountaineering tent. These people are probably in good shape, but I'll let them know I'm here.

"Park Ranger. Are you all right?"

"Are we glad you're here," a fellow says as he sticks his head out of the tent. "We came in last night before the snow. I'm afraid we can't find our way out if the trail is covered."

"Well, the trail is clear now, but if it snows much more it will be covered by morning. I'll be going out in about 45 minutes. If you want to leave, you can go with me."

"Okay, we'll get ready."

Continuing around the meadow, I run across a youth group that I had advised not to go camping. They're cooking steaks over a fire. The aroma is tantalizing.

"How're you doing?" I ask.

"We're leaving as soon as we finish eating," replies the leader.

"Don't wait long. It's dark at 5 P.M."

Heading down the far side of the meadow, I run into another group of four people. They look like they are well equipped. Still they are not staying. Further along, I come upon a Boy Scout Troop. The boys are all buttoned up in their tents waiting for night and the cold. It is 21 degrees, but it will drop to 0 degrees. They seem prepared to stick it out. I bid them goodbye. A last look

around the meadow finds only two other people spending the night.

I go over to a small log cabin that we use for a Ranger Station in the summer. I clear the snow away from the door and take off the lock. Inside, it feels warmer being out of the wind. I take off my snowshoes and snack on some raisins. Then I adjust my snowshoe bindings. The couple that is going out with me is ready and comes over to the cabin. Both of them have cold feet and are chilled. I light a fire to get them warm before we go.

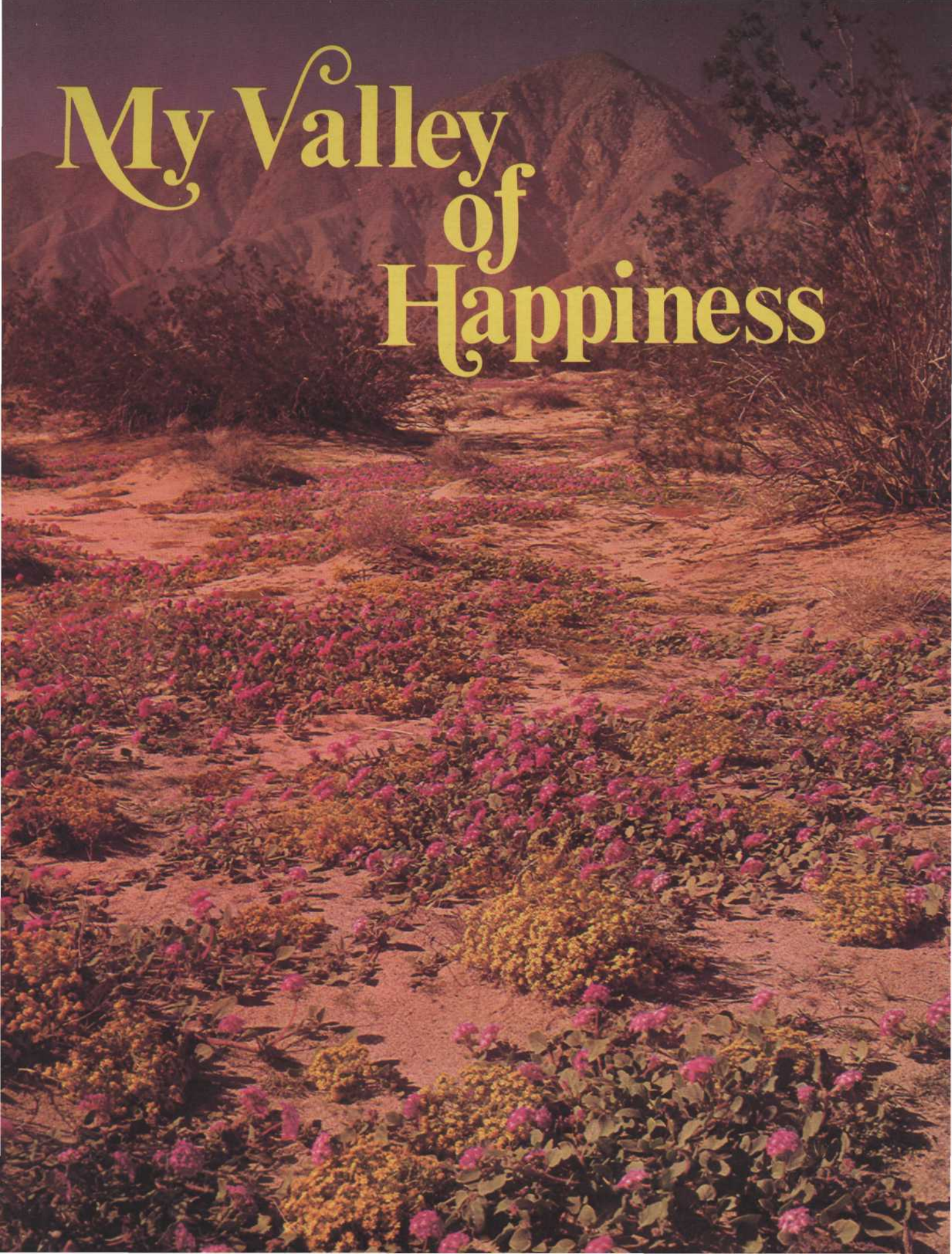
It's a quarter past four. We have to get going if we want to get back before dark. The trail is already partly covered with new snow. I call Darryl on our old crank phone to tell him I'm heading back.

About a half-mile down the trail we catch up with the youth group. They're going slowly. One of the boys is sick, probably from the altitude and exhaustion. The couple goes on ahead while I stay to walk with the boys.

Lightning lights up the clouds above us and thunder rocks the trees. I pause for a moment. Turning to look back up the trail, snow brushes my face and falls silently to the ground. In the dim twilight, the trees take on strange shapes. The forest seems to close in.

I turn to go. Snowshoes glide while snowflakes fall.

My Valley of Happiness



by
Al
Pearce

LIKE TO think of it as my valley. It's like an old friend; a good friend. The kind who is always eager to serve and never demanding.

It's a quiet, restful place when you want it to be. I can sit for hours on the neighboring Santa Rosa Mountains and gaze peacefully across this valley that changes with the minutes.

Sometimes, when I'm just sitting there—maybe on the rocky hillsides above Palm Desert—I see a desert bighorn sheep browsing by. It, too, seems to have found an hour or two of contentment. It's quiet. The view spectacular.

That view seems to reach forever. It ambles across a mesquite and creosote-covered floor; then climbs rapidly up the sides of the Little San Bernardino Mountains, which geologically had their beginning during the pre-Cambrian era.

It's changed, of course, since then. Vegetation and wildlife have been added; and it's truly an area of majestic magnitude. And I'm not alone in this belief. Much of this area on top of those mountains has been set aside. It's called the Joshua Tree National Monument.

But let's get back to my valley. When I turn my head a little bit on that perch above Palm Desert, I see another view, and still another.

I particularly like this spot. I'm afforded an excellent view of the so-called Palms to Pines Highway (California's Highway 74) which has its beginning in Palm Desert where it starts the climb from the desert floor and continues until it is flirting with lofty pine trees.

This scenic highway is called a "natural wonder" by many naturalists. It easily demonstrates the reality of what

Desert/Feb. 1974

*Right:
Two
bighorn
sheep
in their
home
in the
Santa
Rosa
Mountains
above
Palm
Desert.
Opposite
page:
Colorful
desert
wildflowers
cover
the valley
floor.
Photo by
David Muench.*



ecologists like to call "life zones." Each plant, and some forms of wildlife, have learned to survive at particular elevations. Many books on nature interpret this "life zone" concept with drawings.

The drawings perhaps are effective; but the reality is hard to grasp until you have driven from the bottom to the top of this hill.

That's real desert where it begins. There's sand mounded around creosote bushes and scores of those fascinating kangaroo rats, which still has science dumbfounded.

But as you start up this hill, the creosote fades, the sand becomes more packed and the ever-reaching arms of the ocotillo become prevalent. You have entered a different "life zone."

And so it goes from the bottom to the top. The ocotillo fades, along with the yucca that shares its range, and here and there you see a juniper. Then the juniper thickens before disappearing; replaced by chaparral. At the top, of course, are the towering pines.

In the winter, many times, there is snow among the pines. The limbs are burdened and the ground is covered. It's during this time of the year that I especially like my valley.

The temperatures beneath those lofty snow-covered peaks on the valley floor are much more generous. While the rest of the nation is shivering, the people who occupy my valley are running about in shirt sleeves.

It's time for action. And this beautiful Coachella Valley offers as much to the



Author pauses on the hillside above scenic Palms to Pines Highway, while capturing desert bighorn sheep on film.

active family as it does to the person seeking peace and contentment.

The change is often dramatic; like the hawk which suddenly disrupts a quiet afternoon by swooping from the sky to claim a meal.

The peace and quietness is still there, but, for the moment, it's pushed aside for a breath of excitement.

That's how visiting my valley can be. You can find peace and contentment—if that's what you are seeking.

Or, you can wiggle your toes and dig into a barrel full of excitement.

There's the Salton Sea where boating, water skiing or fishing fills the day.

There are scores of Jeep trails meandering across the desert floor and weaving into the nearby foothills.

There is the lure of rockhounding; the thrill of plummeting headlong in a dune buggy across shifting sand dunes; or the excitement generated by an open fire beneath a star-studded sky.

There are scores of hiking trails, both for the casual hiker and for the ardent enthusiasts. There are plants to study, wildlife to observe and geological phenomena to contemplate.

It's all here; everything except a freezing winter day.

My valley is actually what's known geologically as a huge incline. This means simply that, many millions of years ago, the land buckled a bit. The edges of the valley were pushed upward to form the neighboring mountains.

The wind and rain slowly eroded the mountains and the debris was carried into the valley. The results are a myriad of majestically sculptured mountain peaks and a valley floor covered with "silt" several thousands of feet deep.

Almost in the middle of this floor, there is the Salton Sea, a phenomena within itself.

The Sea is incongruous, seemingly belonging to another place in time. But concern over its history takes little away from its enjoyment. It's one of Southern California's most-visited playgrounds.

There are several small communities spotted around the Salton Sea. These communities were given birth by fishermen and are still nurtured by fishermen.

There's a good reason. The chances here of catching a big fish are better than anywhere else in Southern California. The Sea was stocked many years ago with Corvina, a member of the croaker family. Forty-pound fish have been pulled from the Sea. Corvina, when they are in the mood, will hit just about any kind of a lure or bait. At other times, when they are more particular, they are most frequently taken on yellow-fin croaker, a small fish which must be caught by the angler and also found in the Sea.

Water skiing also is a favorite pastime at the Sea. Frequently, this huge body of water settles down to become as smooth as this page you are

reading. This provides ideal conditions for both the beginner and accomplished skier.

There are numerous campgrounds around the Salton Sea, many right on the water's edge. Most have full accommodations and rarely are they all filled.

To really take a look at my valley, it's best to take a tour, starting perhaps at Palm Springs where Interstate 10 meets Highway 111.

Highway 111 turns away from the Interstate and creeps through a series of communities popular to the resort crowds. At Indio, the highway turns south and continues along the north and eastern shores of the Salton Sea.

Another Highway (86) follows the opposite shore and takes the visitor directly to Brawley, or El Centro. These two highways form sort of a circle, making it easy to tour the valley and view most of its splendor.

Let's take that tour.

Just a few short miles after leaving Interstate 10 on Highway 111, a sign at the side of the road points the direction to the Palm Springs Aerial Tramway. If you have the time, the tram ride is well worth it.

Like the Palms to Pines Highway, it has its beginning on the desert floor and rises to coniferous forests. The "life zones" are not as apparent here, primarily because of the steepness of the cliffs. But the steadily changing view, that comes to the eye as the tram rises, is spectacular. So is the view from the top.

Palm Springs, like the other communities found along the next 20 miles of Highway 111, has been made popular by winter temperatures in the 70s. These are primarily resort areas, but also attractive to hikers who set out on foot to enjoy the many canyons that leave the desert floor and climb gracefully into the neighboring mountains.

In Palm Desert, a short side trip south on Portola Avenue leads to the Living Desert Reserve. Here are nearly 400 acres of desert land that have been set permanently aside as an area of preservation and education.

A stop here at the Reserve makes the rest of the tour more meaningful. Exhibits throughout the Reserve are dedicated to explaining the phenomena of the desert you'll later see. There's an



exhibit explaining the geology of the valley; plant exhibits depicting the phenomena of desert fauna; some animals, including three bighorn sheep which are part of a University of California at Riverside study; and numerous other exhibits, all designed to generate a better understanding of the desert.

By the time you have driven through the resort communities, you should be getting some sort of idea concerning my valley. Perhaps it's just an impression that can't be put into words. That's what my valley does to people. It's majestic, it's mysterious, it defies definition.

Anywhere you have looked, you've seen the mountains, like the backdrop on a stage; always present and only vaguely giving meaning to what's taking place. They contribute to the mood, however, creating a reality to the impressions you'll carry throughout the tour.

Beyond Palm Desert, you start seeing large date groves, the product that has made Indio world famous. The romantic date was brought to this area years ago, and it has flourished. Today, Indio competes with North Africa in the production of dates.

Along the highway, there are numerous "date stands." Stop for a minute. It's worth it.

South of Indio, the land bordering the highway is devoted to agriculture. But the mountains are still visible. To the west, you can see an ancient water line on the side of the mountain. The thought of how big the Sea that filled this area

once must have been boggles the mind.

Taking Highway 86, and traveling along the south and west side of the Salton Sea, carries the touring visitor to Brawley. The drive itself is marked only by changing views of the Salton Sea on

one side and the Santa Rosa Mountains on the other side. Points of interest can only be seen by taking side trips.

To discuss all the possible side trips would take more space than is available; but it would be unkind not to mention the

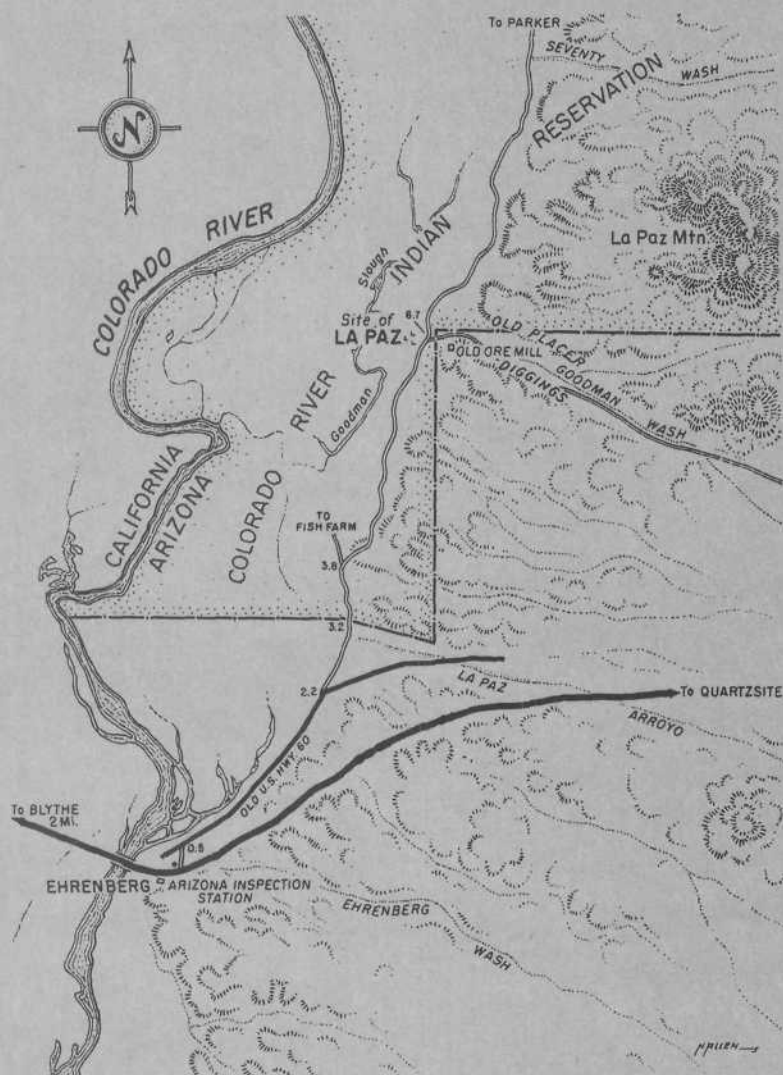
Continued on Page 40

*Above:
Author
tries
his
luck
at the
Salton
Sea.
Right:
Two
hikers
take
a
break
to rest
their
tired
feet.*



Arizona's Lost Ghost Town

by John Southworth



OFF TO THE WEST of the county road which runs through desert country between Ehrenberg and Parker, Arizona, is a vast river bottom mesquite jungle which stretches for miles along the now calm and blue but once riled and muddy Colorado River. The jungle occupies flat, low, almost waterlogged ground across which eons of river floods swept before a series of dams tamed the wild waters.

Somewhere between the road and the river, in that tangle of thorny mesquite, salt cedar, and arrow weed is all that remains of La Paz (The Peace). It is now one of the more appropriately named western ghost towns, a condition which surely did not exist 100 years ago when it was a booming river port and rip-snorting mining camp.

For ten years La Paz, Arizona, was an important combination of river port, stage stop, and mining camp.

As a river port it was a trans-shipment point for cargo coming by boat up the Colorado River from the Gulf of California destined for central Arizona consumers, especially the Vulture Mine and Wickenburg. It returned smelting ores by the same route to far off Swansea, Wales, for metallurgic treatment when not available in the United States. It even handled supplies for the new city of Phoenix and shipped out any surplus produce that the Vulture Mine, the best customer for such produce, could not absorb.

As a stop on the overland stage route from Northern Arizona points to San Bernardino, La Paz was a welcome respite for weary travellers in both directions for they had completed many miles of dust and heat, faced many more ahead, and had found the river station hard to leave. The port was also the innocent and unattained destination of an honest ship-on-the-desert incident.

It is a matter of record that one Joshua Talbot outfitted a twenty-foot sailing ship in Los Angeles, fitted it with wheels for dry land mobility, with teams of horses for power, and back-tracked the stage route to provide a dependable ferry across the Colorado River at the new mining town. Somewhere along the northeast corner of the Salton Sink, perhaps in the wash between the Chocolate and Orocopia Mountains, the grade and the deep sand got too much for the motive power and Talbot had to abandon ship, literally.

As a gold mine, La Paz was an important source of finances for Federal forces during the Civil War, producing gold which helped determine the outcome of that unfortunate conflict.

The La Paz placers were found, as far as the white man is concerned, by Pauline Weaver, that mountain man with the interesting first name. He has since been adopted as its own by Prescott, Arizona, his permanent home in later years.

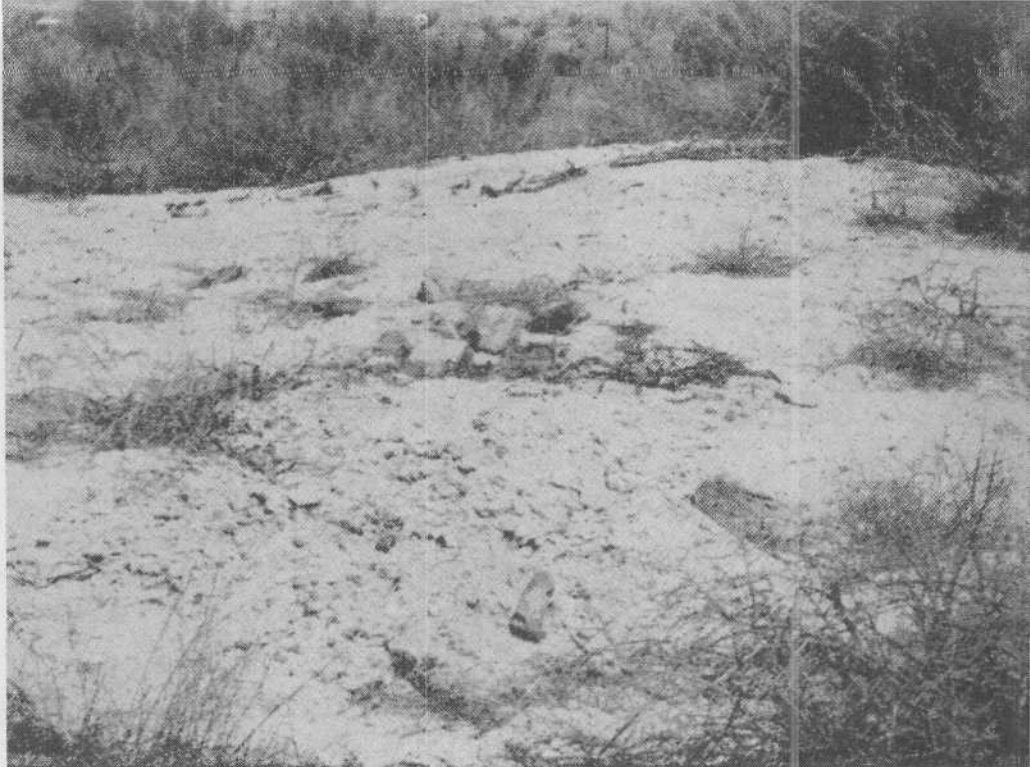
During a beaver trapping expedition in the winter of 1861-62, Weaver and his companions were shown gold nuggets and their river bank source by Colorado River Indians. The trappers worked out a tidy sum of coarse gold from the dry terrace placers and spread the word at Fort Yuma while on a trip to that river settlement for supplies. As luck would have it, his group also discovered the Rich Hill placers near present Congress on their return to central Arizona. Not many men can claim two rich gold finds, especially within 12 months, but Pauline Weaver can.

News of gold up the river was indeed good news for Yuma in 1862. The placers of nearby Gila City were nearing exhaustion and several hundred out-of-work miners rushed to the new strike. Like miners everywhere, they were more than ready to answer the siren call of new gold and La Paz boomed as a supply center for those hopefuls.

A western prospector, wise to the ways of the desert and its miners with their one-track minds, leaves one of the few available first-hand descriptions of early conditions in La Paz. The following was written before there was a plan or permanent building in the new settlement on the river floodplain.

"I came across from San Bernardino with a big wagon loaded with A A Flour for the miners at La Paz. I knew that out there grub was sure to be harder to get than gold, so I put my whole stake into that A A six-mule outfit and trusted to luck to get in ahead of any other train.

"I got to the Colorado one afternoon about sun-down and thought I'd better go over and size up the camp before I had my outfit ferried across. It was supper time and all along the street little fires were burning and men cooking beans and Colorado River fish. The rest of the town seemed to be gathered around a string of blankets that was laid down just outside the fires in the middle of the



This is the site of La Paz from an old photo in the files.

road and all the men who didn't have to cook were playing Mexican Monte.

"They had little piles of nuggets laid out all along the edge of the blankets and, when a man wanted to bet, he just shoved out a handful. I saw more gold as I walked down along that street and watched the gambling than I'd seen since I was born. I got my share of it, too, for the people of La Paz hadn't seen a sack of flour for a month. I had a lot of boxed groceries, too, and I unloaded them and sold the empty boxes for enough to pay my freight out from San Bernardino.

"What did they want boxes for? Coffins and furniture. A man was right in the swim if he could sit on a dry-goods box while he was alive and be buried in a coffin pieced together out of the boxes when he cashed in. Many a good man was rolled in a blanket and laid away in the old La Paz graveyard without even a pine shingle at his head. Gold was the easiest thing to get in those old camps. You could go ragged and next-door-to-hungry with your pockets full of nuggets."

La Paz grew to several hundred adobe huts, a few adobe houses, and at least one store. It challenged Prescott to be the territorial capital and was, for a short while, the largest city in Arizona and the county seat of Yuma County. All the while gold dust and nuggets poured in astounding quantities from the unique dry placers.

Permanence was not destined to be a part of the hectic scene. Even as she prospered, her reasons for existence were gradually eroding.

Like gold placers everywhere, the product is a limited resource and becomes more and more difficult to extract at a profit. To make matters worse in the case of La Paz, the high prices she enjoyed for her gold during the Civil War years ended abruptly. The price plummeted after Jay Gould, early railroad capitalist, tried to corner the domestic gold market in 1869. Her miner population gradually drifted away to greener fields, even as they had come. All the while nature was preparing the final blow.

La Paz was settling down to life without gold or gold miners when the unpredictable Colorado River, in 1870, sought out and found a new, permanent channel two miles west of its previous location. The port city of La Paz was left far up on the river flats with no further reason for existence. But it really didn't matter. If the vagaries of the river hadn't been the final blow, the coming of the western railroads, which put a stop to all river shipping, would have been.

La Paz was through. The mines were pretty well worked out. The town was no longer a frontier port and it sank slowly back into the ground from which it came. Few were around to mourn its passing.

In 1876, the townsite and much of the placer ground was included in the growing Colorado Indian Reservation, an action which discouraged later prospecting and effectively shut off any possibility

of a continuing mining fraternity which might preserve the tales and legends of a bright flash in western history.

With the old timers dispersed and no poet emeritus to record tales of past derring-do, the real history of this great western frontier camp can never be written. Even such mundane vital statistics as peak population and the value of the gold produced are completely missing, lost in the turmoil of changing times, leaving La Paz a legend in itself and a true ghost town.

The general area of the site of old La Paz is easily reached on good oiled roads. About a dozen miles north of Ehrenberg, which is the Arizona port of entry on Interstate 10 opposite Blythe, California, are the ruins of the Golden Belt mill at the mouth of La Paz Wash along the road to Parker. This mill is a relatively

recent construction which was in operation in the late thirties of this century. It is easily spotted close to the road on a low hillside to the east. The area is even marked on some state maps distributed by your friendly gasoline dealers. The area is inside the Indian Reservation with the boundary well marked to advise travelers concerning hunting, fishing, and mining regulations.

Even the old timers who have been there have trouble relocating the exact site of La Paz out in the mesquite jungle west of the Golden Belt mill. Perhaps it is a mile west of the mill, perhaps less. It doesn't really matter because, except for a few hauled-in foundation rocks and a few heaps of melted-down adobe which once were well ordered walls, nothing, but nothing, remains to mark the location of a river port and mining camp that was home to more than five thousand hardy western types and which, for want of just a few more votes, might have been Arizona's territorial capital.

For rugged explorers who don't mind getting their hides torn by the mesquite thorns and their feet wet in the stagnant sloughs that seem to turn to quicksand under the least bit of animal or mechanical activity, there just could still be gold in La Paz. The story persists that the general store, which traded supplies for gold, buried the daily take below the dirt floor in a large iron box (or wooden barrel depending on who is telling the story). According to the very best accounts, one of the seasonal river floods washed away the entire above-ground store along with one of the partner-owners whose unfortunate turn it was to stay in the store that night. The surviving owner, remaining close on the site, searched in the muck as soon as he could, but with no success. He left some time later, after much fruitless digging, with only his life; his partner didn't even have that.

All one has to do to succeed where others have failed is to find La Paz, decide which pile of adobe represents the old store, and dig. But first faith and energy is required for, if I know the weight of raw gold and the accompanying vibrations of the turbulent, booming, overriding water on those very unstable river silt beds, that gold took the shortest route to bedrock, a place where it is reasonably safe from everyone, including you and me.



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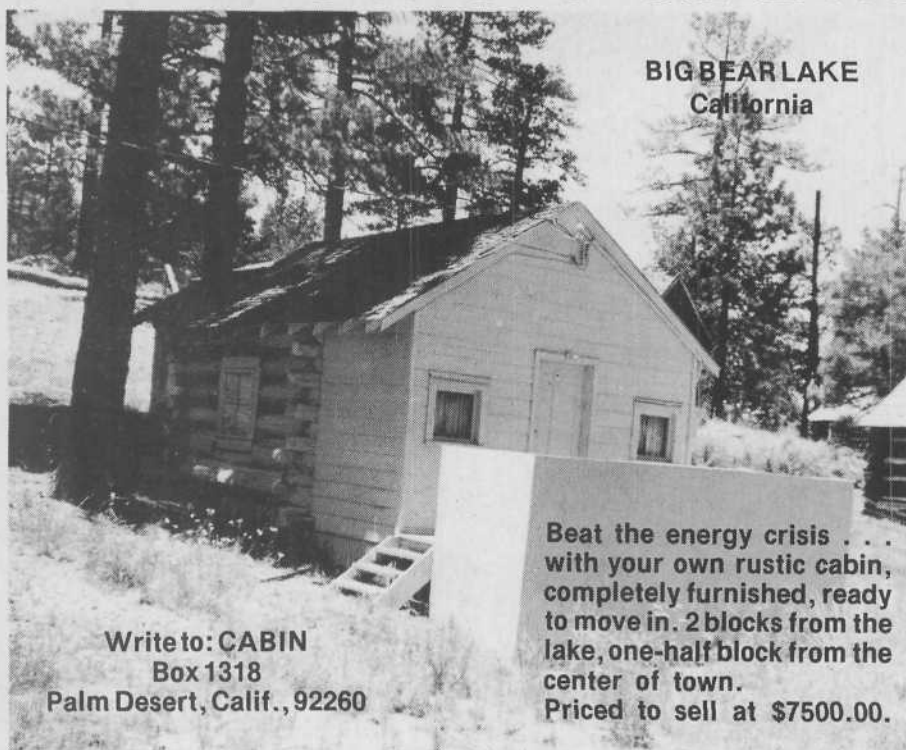
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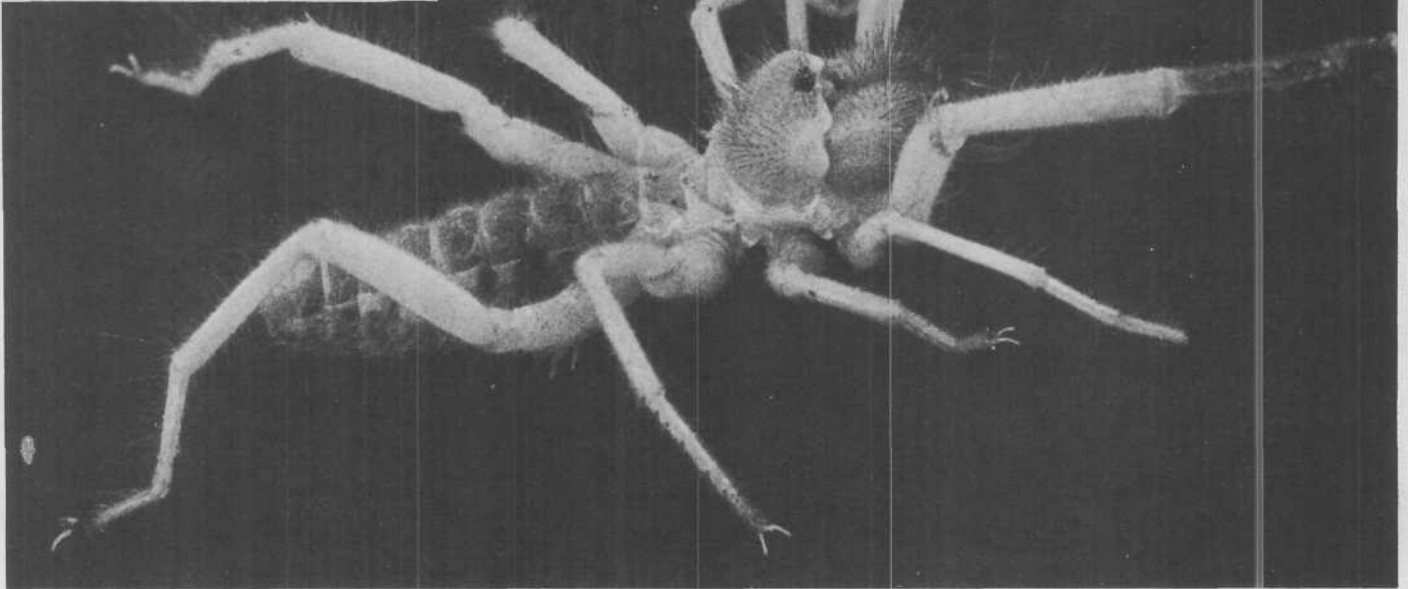


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Desert Life

by Hans Baerwald



Although he looks nasty, the solpugid, or sun spider, is perfectly harmless.



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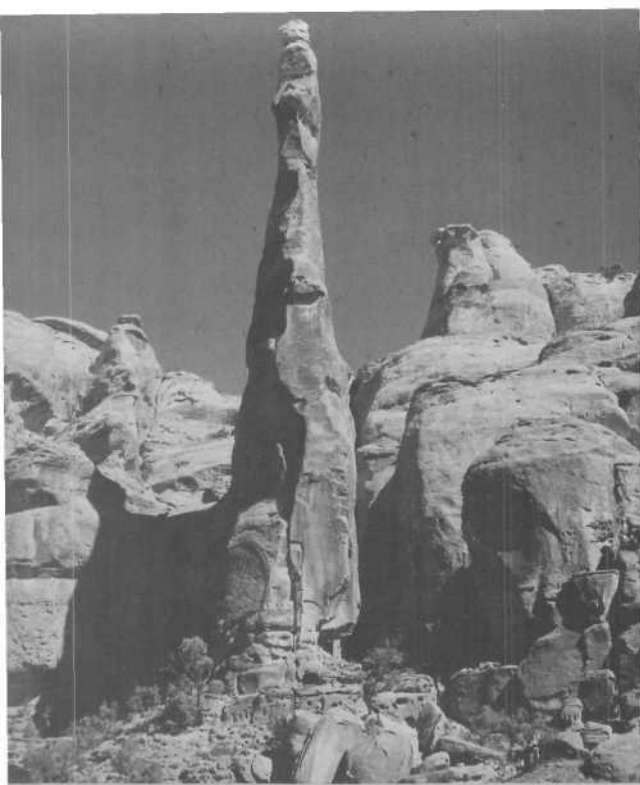
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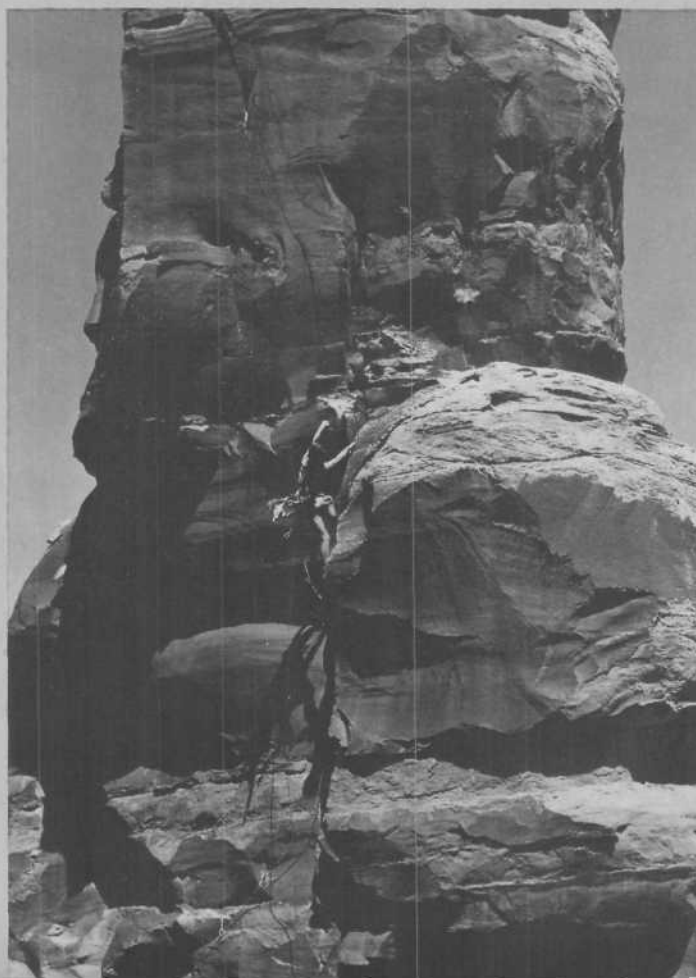
Above: Eric Bjornstad [left] and Fred Beckey are a veteran climbing team and are also among the very few "desert climbers." Some of the hundreds of pounds of special gear needed in "aid climbing" is seen here. Right: Descent after a day's work on a climb is quick and easy. Using special techniques, the climbers "rappel" down ropes attached at various stations along the climbing route. Far right: From the canyon rim Moses seems less imposing. The shorter spire to the right of Moses was first climbed, then named "Zeus."



DESERT



Upper left: The Bride is knife-thin. This picture was taken during the first attempt to scale the monolith. Above: Eric Bjornstad in typical climbing gear. Right: A novice climber is about to ease up on to a ledge, but seconds later a piton came loose and he fell. Far right: After his fall, the climber was stopped by his safety line, dramatically illustrating why desert climbing is not a popular sport.





CLIMBING

by
F. A.
Barnes



THERE ARE thousands, perhaps tens of thousands, of people in this country, who find climbing steep and rugged mountains to be an irresistible challenge. Most of these pursue their urges to conquer heights on weekends or vacations, using few aids except perhaps for safety ropes in the more dangerous situations. This is known as "free climbing," that is, climbing without "aids."

There are also many hundreds of climbers who do "aid climbing," that is, who use specialized equipment to ascend rocky walls impossible to free climb. Those who aid climb use a bewildering array of hardware, such as pitons, anchor bolts, special ropes and harnesses, many of the items bearing European names because the fine art of aid climbing originally developed in the multi-lingual Alps of Europe.

Within the select group of aid climbers there are still other specialists. Of these, perhaps the most exotic of all are the "desert climbers," who probably number only in the dozens. In this day and age of easy international communications, it is not at all uncommon to hear about a

team of climbers conquering some remote and forbidding mountain peak. But who ever hears of the successes of desert climbers?

This rare and little-known type of sportsman follows his lonely avocation with seldom a glance from the spotlight of public notice. He organizes and equips his own expeditions into remote areas of the great southwestern deserts; he accepts a type of challenge that is different in several ways and rarely do his problems, failures and triumphs become known beyond the small circle of other desert climbers.

What is so different about desert climbing? Several things. For one, heat can be a deadly problem in the desert, even in the "cooler" months. Even in January the desert sun can get hot, when the air is still and you are working your way inch by inch up a sheer face of bright rock that faces south.

At times, even getting to a desert climbing site can be difficult. There are few roads as such in most of the best desert climbing areas, and heavy aid-climbing

continued

gear simply cannot be back-packed together with camping gear, food and water. Desert climbers usually take a week or more, and climbing teams consist of two to five climbers, plus a small ground crew. This means a lot of equipment and supplies must be moved into desert wilderness that can only be traveled by pack

animals or four-wheel-drive vehicles.

Another problem with desert climbing is finding something to climb. Desert climbers are a select breed, and scaling an ordinary sheer wall of rock just doesn't interest them. In the eastern half of this country, where young and rugged mountains are virtually non-existent, there are certain well-known rock escarpments that are scaled by hundreds of budding aid climbers each month.

Within the great southwestern deserts, there are literally thousands of miles of sheer walls of rock, often towering a thousand feet or higher. This is especially true within the Colorado Plateau which sprawls across four states and is roughly centered upon the Four Corners. There, the incredible complexity of the Colorado River gorge and its many long tributaries has created such a profusion of sheer canyon walls that desert climbers look to another phenomenon for their challenges.

If asked, veteran desert climbers are hard pressed to explain exactly why they don't find it challenging to scale a vertical wall of rock, and are fascinated by a slender tower of the same kind of rock, but that is the case.

This is what desert climbers seek to conquer—tall, free-standing spires of desert rock, spires with such names as The Priest, The Vanishing Angel, The Bride, Moses, The Titan, Echo Tower, The Owl, Middle Sister and still others that had no names until given them by those who first stood upon their lofty tips.

But there is one other factor that is different about desert climbing, and it is this factor that will forever limit interest in this special aspect of a popular sport. The tall and slender spires that challenge desert climbers are sandstone. The rock involved in other types of aid climbing is generally granite or some other type of harder rock, but in the desert, sandstone dominates, and only certain types of sandstone form the soaring rock fingers that appeal to desert climbers.

Several kinds of sandstone form sheer walls when undercut by erosion—Navajo, Cedar Mesa, Entrada, White Rim, Wingate and others—but Wingate sandstone easily dominates when it comes to forming free-standing towers. These come into existence as ages of erosion isolate narrow, high-walled peninsulas of stone where two canyons come together, then

slowly topple the weaker sections of the knife-thin peninsula. This often leaves remaining for a few centuries or millenia, a spire or series of spires standing tall and proud on a tapering base of crumbled, disintegrating rock talus.

Sometimes other erosion modes also creates slender towers. The famous Fisher Towers near Moab, Utah, were formed of ancient Moenkopi and Cutler sediments when columns of mudstone were protected from rain erosion by harder caprock material. The spires and minarets of Bryce Canyon and Cedar Breaks were also formed in this manner.

But whatever its geologic era, sandstone presents special problems to climbers—it is very, very soft as rock goes, and is thus very dangerous to climb.

Pitons are commonly used in aid climbing. These are little metal devices that are wedged into cracks in the rock. Ropes are then fastened to the pitons, ropes upon which the climbers' lives depend. In harder rock, pitons rarely pull loose, but in softer sandstone, pitons can seldom be relied upon.

To offset this constant hazard, desert climbers must use many more laboriously placed anchor bolts. To appreciate why there are very few desert climbers, imagine hanging on a sheer rock face, in the blazing desert sun, with all your weight on one foot in a rope loop, while drilling an anchor bolt hole at the top of your reach with a hammer and star drill. Then, after placing the bolt and shifting your safety harness upward, drilling still another, and another, and another, for hundreds of feet.

Or imagine standing with your foot in a rope loop, supported by a piton wedged into rock that cannot be trusted, hundreds of feet above a pile of jagged boulders! Of course, if the piton gives away, maybe that anchor bolt a few feet farther down will hold, but how many people could be nonchalant about such a fall?

Yes, desert climbers are a special breed. As a minimum, they must have nerves of steel.

Within the last several years, some of the best of this rare breed have conquered several spectacular spires within southeastern Utah. First, The Bride met her master, then Zeus was conquered in fair battle. Next, the Vanishing Angel was humbled and finally, Moses bowed to his

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captors, though it took three different assaults and a determined team of five climbers to triumph over this lonely, majestic figure.

The Bride stands some 300 feet tall in a short side canyon not far north of Moab. Eric Bjornstad and Fred Beckey are two veteran climbers who have worked together on all kinds of climbs. When they first tackled The Bride, it looked fairly routine, as desert climbs go, but by the time they had reached The Bride's "bouquet," things took on a different appearance. The route chosen, up the right-front side of the knife-thin figure, proved to be extremely hazardous due to a gigantic rock fissure that went from the monolith's base almost to its peak. The climb had to be abandoned for lack of time to start all over.

This was done, however, the following year, and in the spring of 1971, Eric levered himself up the last few feet of The Bride's tiara and symbolically slapped the top of the tall spire. He avoided going the few more feet necessary to stand on top because the sandstone was so "rotten" that it was not worth the risk. "Rotten" sandstone is so decomposed by weathering that it can be torn loose and crumbled by hand.

For their next climb, Eric and Fred chose Moses, an oddly shaped tower of Wingate sandstone in a remote canyon to the north of Canyonlands National Park. Their first two attempts were unsuccessful. Moses was a difficult climb. Very few cracks suitable for pitons, plus too much smooth, sheer rock, made extremely slow-going for only two climbers.

In sheer frustration, Eric, with Fred's support, scaled a less imposing spire near Moses, then named it "Zeus."

Before a third attempt could be made upon Moses, the canyon system in which it stands was annexed into Canyonlands National Park. But when the team of five finally arrived for a third determined assault upon Moses, the Park Service gave permission for the climb. Such permission is routinely granted if there are no hazards to onlookers.

With five skilled climbers working on a new route, and supported by an enthusiastic ground crew of a dozen or so, Moses soon bowed to the inevitable. On October 26, 1972, after several days of strenuous effort, Jim Galvin of Boulder, Colorado, reached the top of Moses' head, over 1,000

feet above the canyon floor, and more than 500 feet above the base of the towering figure. He was quickly followed by Greg Markov of Seattle, Fred Beckey, Tom Nephew, also of Seattle, and finally Eric Bjornstad. Each spent time on top of Moses, savoring the mysterious joy, the sense of accomplishment, that desert climbers seek at such great risk and effort. At one time, three of the climbers stood at once on the tiny 10 by 15 foot space on the top of the tapering monolith.

Compared to Moses, scaling the Vanishing Angel was little more than an exercise. This curious spire stands out from a cliff, high above a gigantic talus slope, to the south of Moab, in Spanish Valley. From two points along the highway that travels the length of this valley, the Vanishing Angel is visible, a solemn, brooding figure silhouetted against the sky. But it then abruptly vanishes from sight as travelers continue toward Moab from either end of the valley, and is virtually impossible to spot from anywhere else, even from directly below where it stands.

In August of 1971, Eric Bjornstad decided to climb this elusive pinnacle and at the same time introduce another climber to the unique techniques so necessary to desert climbing. This young man did very well for a time, but at about 60 feet up, he learned the hard way why desert climbing will never be too popular.

As he was levering himself up onto a tiny ledge, free-climbing a few feet above the highest pitons and anchor bolts, but still wearing safety harness, the sandstone gave a tiny bit and the topmost piton failed, plunging the climber downward! The next piton failed too, but the highest anchor bolt held, slamming the falling climber hard against the rock face in a tangle of rope and climbing hardware.

Bruised and scraped, but luckily not injured seriously, the plucky climber righted himself and would have started up again had Eric not ordered him down to check for less obvious injuries and to examine the equipment.

Two days later, Eric reached the top of The Vanishing Angel, but not before having still another piton fail and drop him a dozen feet or so. When asked about such hair-raising events, Eric just shrugs, grins an enigmatic grin and says—

"That's just part of desert climbing." □

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MYVALLEY

Continued from Page 31

Truckhaven Trail. It's paved now. It wasn't a few short years ago.

The Truckhaven Trail leads to Borrego Springs, passing through land that apparently became confused during development. This is a favorite area for rockhounds. There are the unique desert concretions, grotesque shapes formed by the winds.

This area also was once covered by forests; but all that now remains are pieces of petrified trees, scattered across the landscape like ghosts.

On a weekend, scores of camping families can be found along the Truckhaven Trail. Some are here just for the fresh air; others are rockhounding; others are hiking and finding enjoyment in the odd geological formations.

According to an old story, a fabulously wealthy deposit of gold was once found in this area. And like most stories of this nature, the man who found it was unable to find his way back.

Further south, directly below the turn off to Burro Bend, Sebastian Marsh can be seen to the left. This is a large, marshy area in the middle of the desert that provided water for Captain de Anza when he was bringing settlers to California. It was named after the guide who led the party to the much-needed water.

This area abounds with wildlife.

There are several places here where the touring visitor can form the bottom of his circle and start the return trip. However, I like to swing east from Brawley and take a little time to visit the great Southern California San Dunes.

I can remember a few years back when this was a lonely drive. The sand dunes were rarely visited. But then came the dune buggy and the sand dunes have

now become a way of life for hundreds of Southern Californians.

It's the old story of man pitting himself and his machine against nature—and winning.

The sand dunes are best seen from near Glamis, a spot on the map east of Brawley. They roll like ocean waves, reaching fantastic heights.

It is through this area, at the bottom of the Salton Sea, where universities, power companies, and oil companies are experimenting with thermal-electric power. The scientists working here claim they have made great strides, but there remains several problems to be solved before thermal-electric power becomes a reality.

Sometimes, great clouds of steam can be seen pulsating from wells thousands of feet deep.

Then it's back to Highway 111 for the return trip home. This highway, for the most part, hugs the Salton Sea as it pushes north. The mountains to the east are first the Chocolate Mountains, and then as you approach the northern end of the Sea, they become the Orocopia Mountains.

There are several areas along this drive where you can see the shifting blocks that make up the San Andreas Fault, which begins in this area and splits California all the way to San Francisco. Scientists say that in a few thousand years the western part of this fault will have split off from the mainland and will be a huge island in the Pacific.

And that will be the end of my valley.

Just north of the Sea, east of Mecca, is Box Canyon and Painted Canyon. This area alone is geologically unique. It was brought into being by an uprising of the earth many years after the sedimentary depositing had begun in the valley. The different layers of deposit, now exposed in huge anticlines, form the myriad colors that add brilliance to Painted Canyon.

This just about ends a casual tour of my valley. I've only briefly touched on the highlights, or at least those areas I have found to be particularly interesting. There is much more. I have only scratched the surface; like a book review, I've only summarized.

But once you've seen my valley, I'm sure you'll return. Perhaps, someday, it may be your valley, too. □

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by Helen Peterson

WINE DATE FRUIT CAKE

2 cups chopped dates
1 cup seedless raisins
4 cups wine—(or half water)
2 cups sugar (or if sweet wine is used,
use only 1½)

(Boil the dates, raisins, wine and sugar
for 20 minutes)

Sift together in a large mixing bowl:

4 cups flour
¼ teaspoon salt
1 teaspoon Baking Powder
2 tablespoons cocoa
1 teaspoon cinnamon
1 teaspoon nutmeg
1 teaspoon allspice

After date mixture has boiled 20 minutes,
add to it ¾ cup shortening and 2 tea-
spoons soda dissolved in ½ cup hot
water. Pour hot date mixture over the dry
ingredients and add 1 cup chopped nuts
and 1 cup candied cherries. (Other
candied fruits may be added if desired.)

Bake in loaves for 1 hour, 10 minutes at
350 degrees oven. Glaze while warm with
½ cup sugar dissolved in 3 tablespoons
orange juice.

QUICK DATE CAKE

1 package yellow cake mix (any brand)
1 cup chopped dates
1 cup cold coffee

Soak chopped dates in coffee for 10 min-
utes, drain off the coffee and use as part
of required liquid for cake mix, saving 2
tablespoons for the frosting. Also save ½
cup of soaked dates for frosting.
Stir up cake mix according to directions,
add dates and bake. When cool frost with
following icing:

1 cube butter, or oleo (melted)
3 cups powdered sugar
¼ teaspoon salt
1 teaspoon vanilla
2 tablespoons cold coffee
½ cup soaked chopped dates

Combine all ingredients, adding a little
more water for moisture if necessary for
spreading consistency.

SOUR CREAM DATE PIE

1 cup sour cream
¾ cup sugar
2 eggs (beaten)
1 cup chopped dates
1 teaspoon lemon juice
1 teaspoon salt
¼ teaspoon nutmeg
½ teaspoon cinnamon
1 tablespoon flour
pinch of cloves

(If sour cream is very thick, omit flour)

Combine ingredients; pour into 8-inch
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Rambling on Rocks

by Glenn and Martha Vargas

THE ELEMENTS A Few To Make Many

ALL MINERALS, as well as all things appearing on earth, are composed of various atomic elements which combine to form molecules. There are only a limited number of these elements. The total number is less than 100, and the generally accepted number is about 85. The others are considered by many scientists to be only variations (called isotopes) of the more usual ones.

Of these 85 elements, five are inert gases, and never combine with another element. About 35 are rarely found in minerals; thus nearly all minerals are made of combinations of some of these 45 elements.

There are thousands of known minerals, and the fact that all of them are made of various combinations of this small number of elements is a bit difficult to believe. Obviously, many of the elements appear in a large number of minerals.

Silicon is one of these. It is best known as a combination with oxygen in what we call a silicate. A simple silicate would be one of the metals (actually silicon is a metal, also) such as copper attached to a silicon-oxygen combination. This is called a copper silicate. A number of minerals, each with a different proportion of copper and silicon and oxygen are known. Two fairly well-known ones are; chrysocolla with a formula of $\text{CuSi}_3 + 2\text{H}_2\text{O}$, and diopside, $\text{CaO} \cdot \text{SiO}_2 + \text{H}_2\text{O}$. In the formulas, Cu equals copper, Si equals silicon, O equals oxygen, and

H_2O equals water.

The combinations above do not seem to be very different, but the minerals are quite different. Chrysocolla is brittle, has a hardness of slightly over two, and is blue in color. As a pure mineral, it is a low grade copper ore, and of no use to the gem cutter. If it is mixed in agate, it is now a fine gem material.

Diopside is also somewhat brittle, but at five is much harder, and is a bright deep green. It is usually not cut into gems as it is seldom clear. It has, however, been cut as an emerald imitation.

We would like to mention silicon again. In combinations with two parts of oxygen (SiO_2) it is known as the mineral quartz. This is the second most common mineral (water is the most common). The combination of only silicon and oxygen makes up other minerals also. Opal is silicon dioxide plus water; tridymite and cristobalite are also silicon dioxide exactly as quartz. The inter-relationships of the silicon and oxygen atoms form different crystals, and thus different minerals.

Sulfur is not considered to be a common element, but it commonly combines with various metals, especially the heavy ones, to form what we call sulfides. Copper, zinc, lead, silver, mercury and others are excellent ores in the sulfide form.

Oxygen is common as a gas in our atmosphere, but it is very common in minerals also. The oxide of tin (cassiterite) is the best ore of this metal. Oxygen seems to have the ability to produce very hard minerals as oxides. Sapphire and ruby (both forms of the mineral corundum, aluminum oxide) have a hardness of nine. This is the only mineral presently listed at that hardness. Chrysoberyl (beryllium aluminum oxide) is $8\frac{1}{2}$ in hardness, and again is the only mineral with that hardness. Spinel (magnesium aluminum oxide) is eight in hardness.

There are other oxides of slightly lower hardness, usually about seven. Some of these are of great interest to the gem cutter because he uses them to polish gems. Tin, cerium, iron, chromium, as well as aluminum (corundum) in the form of oxides are well known as polishing powders.

The element carbon is very common in nature. It, in combination with hydrogen and oxygen, makes up carbo-hydrates. This huge group contains starch, sugar, cellulose (wood) and other common

items. Carbon is an important part of the bodies of animals and plants. When the archaeologist wants to know the age of the fossils he finds, he looks for the carbon that was part of the body of the animal or plant when it was alive. The relative amounts of a certain isotope of carbon can help him to determine the age of the fossil. In a future column we will describe this dating method.

Carbon is important mineralogically as the minerals known as carbonates. Most of the carbonates are relatively soft. Calcite is three in hardness, but is very important in industry. It is the largest constituent of cement which is used to make concrete. Other carbonates are also important in industry. The carbonates are not usually important as gems. When they are gem quality, the resultant gems are beautiful, but are not serviceable in jewelry. Some carbonates are soluble in water, and help to form what we know as "hard" waters.

In an earlier paragraph, we said that elements combine to form molecules. This was written somewhat "tongue in cheek." In nearly all cases, a molecule is two or more elements (atoms) tied together with an electrical bond, but there are some apparent exceptions. These we call the Native Elements. Gold, platinum, silver, sulfur, bismuth, antimony, arsenic, carbon and a few others are found as native elements.

Gold is seldom found in combination with other elements, and then usually only tellurium. Tellurium, incidently, is seldom found except in combination with gold. The fact that gold will not easily combine with other elements makes it very desirable for jewelry and other applications that call for extreme stability. Platinum is much like gold, and has the same types of uses.

Silver is fairly common as a native element, but rapidly absorbs sulfur and blackens. It is used in jewelry, but the sulfide tarnish is often a problem. Silver in the pure state is the best conductor of electricity, and finds important uses here.

Copper is common as a native element, but is much more common as the sulfide or in other combinations. It is the second-best conductor of electricity, but will easily corrode.

The other native elements, with the exception of carbon, are not of great importance as they usually quickly combine with other elements when exposed

to the conditions at the surface of the earth. Carbon is a quite different thing!

The other native elements are found in only one form, and are called by such names as native copper, etc. Carbon is found in two different forms and thus has two minerals names—graphite and diamond. They are two very unlike minerals, and we discussed them in one of our previous columns. Graphite is soft, one to two; diamond is hard, 10. Graphite is always dead black, diamond can be water-clear, and there are other differences.

The metallic native elements seem to be formed of molecules made up of a single atom of the metal, but there is much discussion about this. The other elements that form native, are the gases. Oxygen, hydrogen, helium, etc., and the inert gases, neon, argon, and others seem to be different. These form molecules that are at least two atoms of the gas in question.

The fact that gases combine atoms to form molecules leads to the argument that the metals probably do also. As our knowledge of the elements is really not complete, it is very possible that we will find that the metals do combine atoms, also.

The important thing that we must emphasize here is that all minerals that we know, collect, cut, polish, or just admire, are combinations of various numbers of atoms of elements. Some of these combinations are quite complex, being made of a large number of different elements, and the formulas of some would occupy better than half of a line of this page.

An old cliché among scientists says that molecules are the building blocks of the world and all that is on it. This is very true. If we can go a bit further with the thought—the elements are the bits of sand and gravel that make up these building blocks. □

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Snakes Alive . . .

That was an interesting article on the Diamonds (*Desert*, Dec., '73), but there is one thing the author never mentioned; how do you rid an area of them?

My problem developed when a family of rattlers moved in and I've tried everything, but nothing seems to work. They are down under the flooring and you can hear them "rattling" around.

H. W. HALL,
Moriarty, New Mexico.

Editor's Note: Reader Hall does have a problem, one I'm sure the author [K. L. Boynton], has not experienced! Let's try and come up with a solution. I'll admit, my primary concern would be that they remain UNDER the flooring.

Enjoys Desert . . .

Your magazine has become of real interest to our family. For instance, last month we followed the story on old Fort Rock Springs, Point Lobo and the campgrounds at Hole-in-the-Wall. This story was a real gem and we found the distances so accurate. We had a wonderful trip, thanks to *Desert*.

MRS. EVELYN MARTIN,
Kingsburg, California.

Black Gold . . .

Each month when I receive my *Desert Magazine*, I find myself turning first to the Letters to the Editor in the hope that there will be something there about, or from, the fellow who found the black (Peg Leg?) gold. But the months, and now the years, slide by with nothing.

Have you considered rerunning the stories and the letters? I am sure that many of your readers who love the desert and the mysteries of the desert would be fascinated by the story, and the incredible fellow that brought it about. I had to put the whole story together from old back issues I found in Used Book Stores (which was kind of a "black gold" hunt in itself).

Have you heard anything further from the discoverer of the gold?

C. N. CULLIMORE,
Pleasanton, California.

Editor's Note: Nothing has been heard from "Mr. Anonymous" since January, 1969.

Calendar of Events

FEBRUARY 15-24, National Date Festival's "Gem and Mineral Show." Fairgrounds, Hwy 111, Indio, Calif. Dealers, demonstrations. Open and local exhibit divisions. Show Chairman: George Oswald, National Date Festival, P.O. Drawer NNNN, Indio, CA 92201.

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MARCH 1-3, Phoenix Gem & Mineral Show—Silver Jubilee of Gems sponsored by the Maricopa Lapidary Society, Inc. Coliseum, State Fairgrounds, Phoenix, Arizona. Camper parking, Field Trip. Write 3340 N. 64th Dr., Phoenix, AZ 85033.

MARCH 2 & 3, Ventura Gem & Mineral Society's 12th Annual Show, Ventura County Fairgrounds, Ventura, Ca. Dealers full, camping. Show Chairman: Ed Turner, P.O. Box 405, Santa Paula, CA 93060.

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